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Variables Associated With a Sense of Classroom Community and Academic Persistence in an Urban Community College Online Setting

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VARIABLES ASSOCIATED WITH A SENSE OF CLASSROOM COMMUNITY AND ACADEMIC PERSISTENCE IN AN URBAN COMMUNITY COLLEGE ONLINE SETTING

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ABSTRACT

VARIABLES ASSOCIATED WITH A SENSE OF CLASSROOM COMMUNITY AND ACADEMIC PERSISTENCE IN AN URBAN COMMUNITY COLLEGE ONLINE SETTING

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A self-report survey was used to investigate the sense of classroom community in an online community college classroom. Sense of classroom community scores were obtained as well as scores on the four subscales of spirit, trust, interaction, and learning within the Sense of Classroom Community Index (SCCI). Differences between these five dependent variables and type of classroom setting (face-to-face or online) were ascertained by utilizing MANCOVA and ANOVA. Relationships between sense of community and age and course grade were determined through Pearson product-moment and Spearman rho correlations. MANCOVA results indicated a statistically significant difference between type of classroom setting relative to spirit, trust, and interaction. ANOVA results showed no significant differences between dropouts and non-dropouts and their sense of community. There was no significant relationship between sense of community and age of the student or course grade. A slight positive correlation was found between course grade and the sub-scale of interaction. It was concluded that sense of community was affected by classroom setting (face-to-face or online). The slight correlation between course grade and the sub-scale of interaction supports the literature suggesting that learning may be enhanced by increased interactions within the classroom.

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CHAPTER I

INTRODUCTION

Background

In response to many demands by students, businesses, and legislators, today's institutions of higher education are experiencing unparalleled pressure to move toward nontraditional methods of instructional delivery. The Internet is being utilized with greater and greater frequency to enhance traditional face-to-face courses and to provide nontraditional delivery of courses to students at a distance. Distance education utilizing computer-mediated communication (CMC) is changing the roles of students and instructors as students take a more active role in defining their learning experiences and instructors transition to become facilitators of learning rather than dispensers of facts.

Institutions of higher education use a variety of distance education technologies such as: compressed video, two-way audio/video, and synchronous/asynchronous online technology (Phipps & Merisotis, 1999). The proportions of public 2-year institutions offering distance learning courses grew from 58% to 72% from academic year 1994/95 to academic year 1997/98 (U.S. Department of Education, 2002). According to the National Center for Education Statistics (NCES), during the 1997/98 academic year, asynchronous Internet instruction was among the top three technologies employed to offer distance education (U.S. Department of Education, 2002). The percentage of instructors utilizing asynchronous Internet-based technology, among all instructors employed by institutions of higher education utilizing any form of distance education, went from 22% in the 1994/95 academic year to 60% in 1997/98 academic year, almost a three-fold increase (U.S. Department of Education, 2002).

The demographic landscape of higher education also is changing. In 1996, total college enrollment was 12.3 million. Total enrollment is expected to rise to 15.2 million through 2010 and to change in the following ways: enrollment of the 18-to-24-year-old population (traditional) is projected to increase 18%; enrollment of the 25-to-29-year-old population is projected to increase by 13%; enrollment of the 30-to-34- year-old population will decrease by 17%; enrollment of the 35-to-44-year-old population will decrease by 10%; enrollment of women is expected to reach 58%; and those enrolled full-time will reach 61% (U.S. Department of Education, 2002). Concurrent with these changes, global demand for electronic delivery of college courses is escalating and will expand only if quality and content is on par with that found in traditional settings (Jones, 1998).

Traditional university campuses are made up of communities of scholars and students. Students interact when they live in residence halls and participate in school clubs and activities. The broad range of activities in which to participate that arises in such an environment contributes to friendships and a sense of belonging. Students and faculty working together to achieve common research goals also form relationships. Community colleges, however, with their diverse, non-residential population, do not experience the same type of social bonding. Cohesion in a community college does not occur at the institutional level, but rather at the individual classroom and program levels, and the students in the classroom and programs are very diverse (Ritschel, 1995).

Student enrollment in public 2-year institutions is also diverse. According to the American Association of Community Colleges (AACC) (1999) the average community college student is female with at least one dependent, is over the age of thirty, and works

at least part-time. Community colleges enroll 46% of all African American students in higher education, 55% of all Hispanic students in higher education, 46% of all Asian/Pacific Islander students in higher education, 55% of all Native American students in higher education, and 46% of first-time freshmen, many of whom are first generation college students (American Association of Community Colleges, 1999). Community college classrooms attract recent high-school graduates as well as students two and three times the age of high-school graduates. Community college students attend classes for a myriad of reasons and are brought together in the classroom where they will share an experience and where most interactions occur. Educators in the community college setting are challenged to meet the learning needs of this wide variety of students.

Online courses perhaps bring together an even more disparate group of students. Instructors in the community college must recognize that students' perceptions of classroom community relates to their learning experiences (Bryk & Driscoll, 1988), and that fostering positive learning experiences translates into lower drop-out rates, increases in student-to-student referrals, and deeper commitments on the part of the students to the institution and program of study (Biner, Dean, & Mellinger, 1994; Tallman, 1994). Data on the sense of classroom community, therefore, need to be collected in an effort to understand the asynchronous learning environment, as will be done in this study.

Statement of the Problem

With the expected sustained growth in enrollments in institutions of higher education and the increasing popularity of Internet-based education, it is imperative that the online environment be studied and findings translated into design and evaluation components used to improve the online classroom. One component worthy of study is

the sense of classroom community. The Sense of Classroom Community Index (SCCI) (Rovai, Lucking & Cristol, 2000) used in this study was designed to test McMillan and Chavis' theory of sense of classroom community. McMillan and Chavis (1986) define sense of classroom community to include four specific dimensions, which must be present in order to feel a sense of community. The four dimensions are spirit, trust, trade/interaction and art/learning and are explained fully in Chapter II.

Students' successes in community college distance education courses have been evaluated for a variety of formats. In 1991, a statewide distance education implementation strategy was developed in the Commonwealth of Virginia (Easterday, 1997). One part of the strategy was to share instructors of distance education in larger colleges with smaller ones. Enrollments were transferred to the instructor's college, according to prearranged agreements, where the course was taught. Students' success was not affected by the distance of the instructor (Easterday, 1997). Students enrolled in distance education programs at Chattanooga State Technical College during 1989 to 1992 were surveyed to aid in the distance education developmental process. Methods of distance education were instructional television fixed services (ITFS) broadcast, local public broadcasting system (PBS) affiliate station, and videocassette checkout or mailout. The student success rate was 63.4% (Hyatt, 1992). Nixon (1992) compared the learning outcomes of students enrolled in courses offered via two-way video. Learning outcomes were compared between students at a remote site and students at the origination site. No statistically significant difference was found in learning outcomes between the two groups of students (Nixon, 1992). However, little research has been conducted in which student success in the online community college classroom has been investigated. This

research is necessary as online course offerings increase. Through this study, the researcher will seek to understand the affective dimension of the online classroom community in an urban community college setting. Drawing on the theoretical constructs related by McMillan and Chavis (1986) the following questions will be addressed:

1. How does the online classroom setting, utilizing a course web page, threaded discussion, and a course listserv, affect student feelings of spirit, trust, interaction, and learning in an urban community college semester course?
2. How does sense of classroom community differ between students who drop out and those who do not drop out of courses in an online urban community college semester course, which utilizes a course web page, threaded discussion, and a course listserv?
3. How does age affect sense of classroom community of students enrolled in courses in an urban community college semester course, which utilizes a course web page, threaded discussion, and a course listserv?
4. Is there a relationship between sense of classroom community and academic performance in an online urban community college semester course, which utilizes a course web page, threaded discussion, and a course listserv?

Purpose and Rationale

In education, planners try to reach more people, offer up-to-date training and degrees, provide a positive learning experience with desirable outcomes and keep costs to a minimum. An important benefit of offering online courses is the potential for increased enrollment due to the flexible nature of the environment. Another potential benefit to offering online courses is enhanced student diversity, as enrollment is not limited to only those students who can physically attend an on-campus course, but is open to anyone

who has access to the required technology and resources. Potential for improved communication between students and faculty due to the non-threatening nature of the online environment is also an anticipated benefit as is an increase in learner control (McCormack & Jones, 1998).

Challenges which may be encountered when offering online courses include those of ensuring technological access for students and educators, and funding to cover the high costs associated with developing online courses including hardware, software, and infrastructure development. Institutions offering online courses also must support faculty who will develop an acceptable pedagogy for the online setting and ensure course quality. Institutions and faculty also must address issues of copyright, privacy, security and authentication of online courses (McCormack & Jones, 1998). Failure to create an acceptable learning environment by creating a positive sense of classroom community may also be problematic. Other commonly-stated concerns involve the intensive time and labor commitment needed to develop and deliver online courses, the lack of face-to-face communication, and questions regarding quality of online courses compared to face-to-face courses (Dumont, 1996; Grossman, 1999). Distance education, utilizing the asynchronous online setting, is one alternative to reaching more people because students do not have to be physically present on campus to take a course. However, can institutions, through distance learning, provide society with the experiences and outcomes desired?

The literature on geographic (communities formed by geographic proximity of members) community is extensive (Shaffer & Anundsen, 1993), yet the literature pertaining specifically to online communities as they exist within the teaching and

learning experiences of the participants is not as complete. Thomerson and Smith (1996) found that distance learners often have different affective (feelings and attitudes) experiences than traditional classroom students and that these experiences need to be considered when evaluating distance education courses. Research is lacking concerning examination of the affective dimensions of online classrooms involving how participants relate to one another and interact to form communities. Although there is an abundance of literature on communities and educational technologies of all types, there remains a continuing need for research to examine what community (building and learning) activities occur online. While studies have shown that there are no significant differences in cognitive achievement of students in courses utilizing technology verses traditional courses (Russell, 1999), some of these same studies did show that students in distance education courses did not enjoy the classroom experience, failed to enjoy frequent interaction with the instructor and classmates, and did not feel as comfortable in the distance learning environment compared to the traditional face-to-face environment. These have been correlated with cognitive achievement and are important affective experiences to try to achieve (Hunt, 1987; Learmont, 1990; Simonson, 1979; Walberg, 1984).

Wolfe (1998) identified 33 terms that most often were identified by over 900 students when asked to describe the best teacher they had ever had. Eighty percent of the identified terms were affective reflecting a positive instructor attitude, or affective/cognitive reflecting affective qualities and cognitive qualities. Terms students used to describe their favorite instructor included: sincere, enthusiastic, care and concern, sense of humor, flexible, professional, objective, approachable, prepared,

dedicated, good listener, confident, and friendly. Wolfe concluded that, while good communication skills and content knowledge of the instructor were important qualities, positive attitudinal behaviors of instructors were as or more important to student enjoyment and satisfaction with the learning experience. In order for instructors to foster a sense of community they must first be aware of those skills students feel create a positive learning atmosphere and be willing to develop those skills (Wolfe, 1998). This becomes a challenge in the online classroom setting as there is no face-to-face teacher/student interaction and instructors cannot observe student's nonverbal cues.

The study of academic achievement as related to sense of classroom community has not been done. Theory-driven empirical research is needed in order to develop criteria to guide the development and utilization of Internet-based instruction in order to promote positive learning experiences. Studying sense of classroom community is one way of learning about effective teaching practices in the online classroom. The purpose of this research, therefore, is to (1) evaluate overall sense of classroom community comprised of feelings of spirit, trust, interaction, and learning and (2) investigate the relationship between classroom community and academic performance in an urban community college online classroom environment.

Significance of the Study

According to a survey by the National Center for Education Statistics (NCES), almost one-third of the nation's public two-year and four-year institutions of higher education offered some form of distance education during the 1997/98 academic year, and an additional one-fifth planned to implement distance education offerings within the next three years (U.S. Department of Education, 2002). Approximately, 1.7 million

students enrolled in distance education courses during academic year 1997/98 with 1.4 million, mostly undergraduates, enrolled in college-level, credit-granting distance education courses (U.S. Department of Education, 2002). Most distance education courses had enrollments of 300 or fewer students (U.S. Department of Education, 2002). In a short period of time, between academic years 1994/95 and 1997/98, the percentage of institutions of higher education offering distance education courses increased from 33% to 44% and the number of course offerings and enrollments almost doubled (U.S. Department of Education, 2002). While the percentage of institutions of higher education offering distance education degree and certificate programs remained the same during academic years 1994/95 and 1997/98, the number of online degree and certificate programs offered nearly doubled (U.S. Department of Education, 2002). Internet technologies were utilized primarily and used equally by 2-year and 4-year institutions. Synchronous Internet instruction accounted for 16-22% of the usage and asynchronous Internet instruction accounted for 57-61% (U.S. Department of Education, 2002). Institutions offering distance education courses in 1997-98 or those planning to offer distance education courses in the next three years planned to increase their use of, or start using Internet-based technologies (U.S. Department of Education, 2002). Decision makers, educators, and students should have the data on the online classroom community generated by this study to add to the data on cost and access, in order to make more informed decisions about educational systems, curriculum revisions, and student services (Johanson, 1996).

Relationship to Urban Services and Urban Education

In *Urbanism As a Way of Life* (1938) Louis Wirth proposed a theory of urbanism based on his definition of the word city, "a relatively large, dense, and permanent settlement of socially heterogeneous individuals" (p. 8). A number of interesting parallels can be made between the ideas in Wirth's article and the current state of online education as it relates to urbanism. As technology continues to evolve, a new definition of urban education must be made, as many of the traditional characteristics related to the urban environment, specifically size, density and permanence, no longer apply. Over sixty years ago, Wirth (1938) concluded that communities "will bear the imprint of urbanism in the measure that through contact and communication [they come] under the influence of cities" (Wirth is referring to the rural community, but this idea applies to communities of all types) (p. 7). Wirth also suggests that while the epicenter of urbanism remains in areas that fit the traditional definition of the word city, "urbanism is not confined to such localities but is manifest in varying degrees wherever the influences of the city reach" (p. 7). These ideas are central to redefining the idea of urban education to include asynchronous online distance education.

Consider the historical idea of the city as the melting pot of races, people, cultures and ideas. Schaffer and Anundsen (1993) remind us that cities have tolerated and rewarded individual differences and that this is the very magnet that attracts people from all areas to the city. People's differences become useful characteristics in such an environment, not their similarities. The world of online education has become the perfect setting for the perpetuation of this idea, perhaps the ideal melting pot.

Size or numbers of participants may have an effect on relationships existing in the online community just as they do in an urban location. The more people involved in a community where interaction takes place, the more variations exist and the greater the possibility for devisiveness (Wirth, 1938). Communication tends to occur at a lower level revolving around topics of interest to all (Wirth, 1938). Formal mechanisms help to control for devisiveness. Online educators struggle with class sizes as they try to please administrators who want high enrollments and as these instructors try to create an ideal learning community in which to engage participants.

Density (an increase in numbers when area is held constant) is typically high in urban areas. However, density is not a factor in the online setting (except in the case where data transfer cannot keep up with demand causing a delay in access to online communities). Therefore, large numbers of people can interact without the negative implications associated with high density (differentiation and complexity).

Urban areas tend to be very heterogeneous. People tend to interact tangentially and based upon personal interests or needs. Membership in groups is variable with a high turnover rate, making the task of establishing lasting relationships difficult (Wirth, 1938). In the online educational community participants may be heterogeneous in some aspects but are made homogeneous by virtue of their enrollment in a particular course, their level of education, their access to technology, and their ability to secure resources to pay for a course. Community can be built around these similarities.

Theories about the growth of cities have included the concentric zone theory, the sector theory, and the multiple nuclei theory (Harris & Ullman, 1945). Traditional spatial patterns have become less important as technology has facilitated the formation of ties

outside the geographical area (Webber, 1963). As a result of these technologically driven ties, community based on geography has become less prevalent and community based on relationships has increased (Royal & Rossi, 1996). Communities based on relationships refers to networks of individuals interacting within formal organizations and institutions and as members of informal groups (Heller, 1989), such as the online classroom.

Finally, online education offers an alternative to the idea of utilizing urban space and its associated costs. Many institutions (educational, medical, residential, religious, business) compete for urban space. Engineers investigate how to provide services to areas of high density and maintain a thriving tax-base to support these services. Roadways, waterways, railways and airways to allow for movement of cars, buses, ships, trains, and planes must be in place to allow for communication and commerce. Therefore, competition for land in urban areas is fierce. Virtual universities, offering online courses and utilizing cyber-communication methods (i.e., electronic mail, World Wide Web, threaded discussions), do not need as many buildings and residence halls associated with traditional institutions of higher education; thus, these entities do not need to compete for desirable revenue-generating land. While some may argue if universities do not take up physical space, only cyberspace, there is a danger that these institutions may not be deemed necessary to the community. Others may emphasize that buying land contiguous to campuses for educational purposes, at the expense of residential areas and local businesses, lowers the tax revenue for that city. Virtual universities could very well enhance city or state revenues by reducing the need for the valuable land associated with physical structures.

Research Questions

Survey research utilizing a quasi-experimental design will be conducted to determine student sense of classroom community comprised of the domains of spirit, trust, interaction, and learning in the urban community college online classroom setting. Data will be analyzed to determine how sense of classroom community is related to academic performance and persistence, and how age affects overall sense of classroom community.

The following specific questions will be addressed:

1. How does the online classroom setting, utilizing a course web page, threaded discussion, and a course listserv, affect student perceptions of spirit, trust, interaction, and learning in an urban community college semester course?

2. How does sense of classroom community differ between students who drop-out and those who do not drop-out of courses in an online urban community college semester course, which utilizes a course web page, threaded discussion, and a course listserv?

3. How does age affect sense of classroom community of students enrolled in courses in an urban community college semester course, which utilizes a course web page, threaded discussion, and a course listserv?

4. Is there a relationship between student's sense of classroom community and academic performance in an online urban community college semester course, which utilizes a course web page, threaded discussion, and a course listserv?

Assumptions

The following assumptions will be made for the purpose of this study:

1. Subjects will respond honestly to the questions on the self-report questionnaire.

2. The conduct of the study will not have a reactive effect (i.e., cause the subjects to respond a certain way) on the subjects' measured sense of classroom community or course grade.

3. Study results can be generalized to the experimentally accessible population (the population of subjects accessible to the researcher) and to the target population (the total group of subjects to whom the findings will be applied) (Ary, Jacobs & Razavieh, 1996).

Delimitations and Limitations

The following boundaries and qualifications apply to this study:

1. The subject pool consists of intact groups of students enrolled at a large, urban community college in either a face-to-face or asynchronous online course of the same subject taught by the same faculty member; therefore, no random selection will take place and random assignment will not be utilized. Group homogeneity will be limited .

2. The study confines itself to an examination of asynchronous online and face-to-face instruction of identical courses, taught by the same faculty member, at an urban community college. Application based on results will be limited to this population.

3. This is a quasi-experimental study. True experimental designs utilizing random assignment will not be used; therefore causality cannot be inferred from study results.

4. All subjects will be given the opportunity to decline participation; thus, response rate may be limited.

5. The only instrument to be used to measure overall sense of classroom community will be a self-report instrument. Age and gender data will be collected for possible evaluation. Otherwise, there will be no measure of treatment effects across multiple domains.

6. Course content and instructor will be the same for each group of data collection. The main difference will be the classroom setting (face-to-face or asynchronous online). Generalizability of the study is limited to identical courses taught either face-to-face or utilizing asynchronous online instruction by the same instructor in an urban community college sixteen-week semester course.

7. The size of the experimentally accessible population and length of study will limit sample size. An adequate number of semesters where courses that meet the study criteria are taught will be surveyed to ensure $n > 50$ sample sizes from each setting.

8. The research is limited in access to the experimentally accessible population of only those students where the faculty member agrees to participate.

Definition of Terms

The following definitions are used in this study:

Asynchronous communication: Communication that does not take place in real time, but rather when the participant so chooses.

Asynchronous Learning Network: A distance learning framework that allows students to access resources and interact asynchronously (not at the same time) (Mayadas, 1994).

Bulletin Board Systems (BBSs): Early virtual communities, originating in the late 1970s, where personal computer users connected via phone lines and exchanged information around a network with no central control point (Rheingold, 1993).

Computer-mediated communication (CMC): A term denoting the use of computers and communication technologies in learning. Also known as computer

conferencing, online learning, Internet-based learning, and telematics (McCormack & Jones, 1998).

Cyberspace: A term used to denote conceptual space where computer-mediated interactions of all types take place. The term originated with William Gibson's science-fiction novel *Neuromancer* (Rheingold, 1993).

Distance education: An educational environment in which the teacher and learner are physically separated and various tools/techniques are used to communicate (Willis, 1998).

Distance-learning: A term used to describe the desired outcome of distance education (Willis, 1998).

Face-to-face: Student and instructor are in the same place at the same time.

Internet-based instruction: Classes that are delivered utilizing primarily electronic mail and/or Web pages.

Listserv: An Internet discussion format whereby messages from participants are sent to one computer (the listserv computer) and the computer copies and distributes the message to all members of the discussion list (Pejsa, 1998).

Net: An informal term for the Internet, a worldwide network of computers linked for the express purpose of data exchange and communication.

Synchronous communication: Communication that occurs in real time, or instantaneously.

Threaded discussion: An Internet discussion format whereby one individual posts a comment related to a specific topic, others respond to the comment and the originator of the comment can respond to these responses, initiating a chain

of counterresponses. Responses are always displayed so one may follow the tone of the conversation (Pejsa, 1998).

Virtual communities: Social groups that evolve from the Internet when people interact long enough, in a meaningful way, resulting in the formation of personal relationships in cyberspace (Rheingold, 1993).

Direction of the Study

This chapter provides an overview of the study. Chapter II will focus on the related literature concerning ideas and methodologies utilized in this study. Included are reviews of literature related to community, psychological sense of community, and the community college environment. Chapter III will describe in detail the purpose of this research, data collection procedures, the location of the research study, variables, sampling design, treatments, instrumentation, instrument validity and reliability, the research design and potential statistical analysis procedures to be utilized, confounding variables, and internal and external validity threats. Results of the study and data analysis will be presented in Chapter IV and conclusions, recommendations and implications for future study based on the findings of this study will be discussed in Chapter V.

CHAPTER II

LITERATURE REVIEW

To frame this study of the sense of classroom community in an urban community college environment, relevant literature in several main areas has been reviewed: (a) psychological sense of community, (b) virtual and classroom community, (c) learning community, and (d) the community college environment. The theoretical framework is also provided to include the dominant theory of psychological sense of community.

Theoretical Framework

Several dimensions for framing the study of asynchronous online learning in the urban community college environment will be discussed in the following sections.

The Technology Acceptance Model (TAM)

Russell (1999) suggests that there is no significant difference in learning outcomes when technology is utilized in a course versus instruction via traditional face-to-face methods. Others (Joy & Garcia, 2000; Phipps & Merisotis, 1999) find the research on technology and learning seriously flawed. Thompson & McGrath (1999) found that technology did not enhance satisfaction of students enrolled in Penn State's World Campus, an asynchronous learning network (ALN). However, it seems logical that students who are more familiar with using technology may experience a more favorable learning situation when enrolled in asynchronous online courses than those students who are not familiar with using technology. The Technology Acceptance Model (TAM) is based on two main variables, which are perceived usefulness of a technology and the perceived ease of use of a technology (Davis, 1989; Davis, Bagozzi, & Warshaw, 1989). Perceived usefulness represents an extrinsic motivator for the student considering

whether or not to use a technology. If students believe that the technology will be performance-enhancing they may be more likely to try the technology. Perceived ease of use represents an intrinsic motivator for the student considering the student may be more willing to try a technology if he/she thinks it will be easy to use (Davis, 1989; Atkinson & Kydd, 1997). The TAM suggests that perceived usefulness and ease of use of technology influence the attitude of those considering whether or not to use a technology and this model has been found to be a valid predictor of usage of the Web (Atkinson & Kydd, 1997) and electronic mail (Gefen & Straub, 1997). Students who are more comfortable with technology may have a more positive learning experience when taking an online course.

Flexibility of the Asynchronous Online Environment

Asynchronous online courses are independent of time and place thus offering a high degree of flexibility for students. Interactions with classmates occur over time with opportunity to reflect upon and process information gleaned from others (Dede, 1990; Harasim, 1990). This flexibility may help students feel more of a sense of classroom community as a well-designed online environment also may allow for more dynamic interaction, collaborative learning, and multiple points of view (Leidner & Jarvenpaa, 1995; Brandon & Hollingshead, 1999). Students enrolled in Penn State's World Campus cited convenience as a primary enhancer of satisfaction (Thompson & McGrath, 1999). The opportunity to choose when and where one participates in a course may be more motivating than the traditional model and this choice may enhance the learning experience.

Interactivity of the Asynchronous Online Environment

Interaction in the traditional classroom occurs through speaking, listening, demonstrating, reading, and writing. In the online classroom, however, interaction takes place electronically through typing and reading from a computer screen (Jones, 1998). There are four dimensions to interaction in an asynchronous online environment: (1) learner-to-learner; (2) learner to instructor; (3) learner-to-content; and (4) learner-to-interface/technology (Moore, 1989; Hillman, Willis, & Gunawardena, 1994). Research shows a greater volume and more equal student participation in electronically generated discussions than in traditional face-to-face discussions (Bailey & Koltar, 1994; Strauss, 1996). Initially, however, the development of social ties resulting from interaction in the online setting is more difficult without face-to-face interaction (Flaherty, Pearce, & Rubin, 1998; Warkentin, Sayeed, & Hightower, 1997). At some point participants in online communication become more comfortable with one another, and there is a perception by participants of a higher quality outcome versus the outcome from face-to-face communication alone (Chidambaram, 1996; Gallupe et al., 1992).

In a study comparing classroom community in two distance learning doctoral-level programs that were identical except for frequency and setting of face-to-face interaction, Rovai (2001) found that community was stronger in the group where opportunities for interaction were more diverse and more frequent. Rovai's (2001) study found that learner-learner and learner-instructor interaction outside the Asynchronous Learning Network (ALN) environment improved sense of community. Students enrolled in Penn State's World Campus cited the level of interaction with faculty as a primary enhancer of satisfaction (Thompson & McGrath, 1999). Instructors who focus on the

style of their online conversation may enhance the dimensions of interaction and foster a more positive sense of online classroom community. Similarly, institutions of higher education that offer asynchronous education may benefit from fostering community and encouraging instructors to offer opportunities for interaction outside of the asynchronous environment (Rovai, 2001; Thompson & McGrath, 1999).

Student Engagement in Asynchronous Online Courses

Prior computer experience is a strong predictor of attitudes toward computer-related activities (Dyck & Smither, 1994; B. E. Whitley, 1997; Atkinson & Kydd, 1997). Students in online courses gain experience every time they log-on to the course Website and spend time there reading, searching or conversing with classmates. These students are more likely to repeat the computer-related experience (Hiltz, 1994; Ridley & Sammour, 1994). The more time a student spends on an online course, the more comfortable they become, the more ownership they may take of their learning and the more they may contribute to enhancing sense of classroom community (Hiltz, 1994; Ridley & Sammour, 1994).

Student Achievement

Very little research has been done in the area of student achievement and asynchronous distance learning (Wegner, Holloway & Garton, 1999). Wegner, Holloway & Garton (1999) studied the effects of distance learning on student achievement during two semesters of study (N=17 in the control group and N=14 in the Internet-based group). Achievement was measured by an identical 100-point exam (objective, short answer and essay questions) at the end of the semester. No significant difference was found in achievement between the two groups (Wegner, Holloway & Garton, 1999). Age

was found to be related to course outcome in a study by Fiebert (1971). Older subjects reported higher grade point averages (GPAs) and feelings of less social distance with instructors.

Self-directed Learning

A new paradigm for learning has the learner, verses the instructor, at the center of the educational experience and this shift in emphasis can be achieved through the online learning environment. The idea of self-directed learning is based on the idea that learners actively participate in creating meaningful learning experiences through experimenting, exploring, manipulating and testing of ideas in a realistic setting (Brooks & Brooks, 1993; Cranton, 1994; Myers & Jones, 1993). Strategies used to assist in this process include collaboration, establishing common goals, encouraging teamwork through group activities and simulations, and using open-ended questions (Brooks & Brooks, 1993). (Cranton, 1994; Myers & Jones, 1993). Instructors who facilitate learning and foster personal meaning-making are preferred by students to instructor-centered and controlled processes of learning. Online learning can be very interactive and this is the way most adults learn (Jones, 1998). These theories of learning are applicable especially to the online environment (Palloff & Pratt, 1999) and lay a strong foundation for the present research.

Collaboration

There is extensive research revealing the benefit of collaboration to student learning (Hiltz & Wellman,1997; Poole, 2000). Passive learning is possible, but in the online learning environment active learning through interaction and collaboration seems to be more effective (Clark, 2001). Schrage (1991) offers a model based on the theory of

collaboration, which is potentially useful when designing online courses and focuses on the creation of value as a central theme. According to Schrage (1991):

> Collaboration is the process of shared creation: two or more individuals with complementary skills interacting to create a shared understanding that none had previously possessed or could have come to on their own. Collaboration creates a shared meaning about a process, a product, or an event. In this sense, there is nothing routine about it. Something is there that wasn't there before. Collaboration can occur by mail, over the phone lines, and in person. But the true medium of collaboration is other people. (p. 40)

Schrage's collaboration model has thirteen features: (1) competence, (2) mutual goals, (3) mutual respect, tolerance, and trust, (4) shared space, (5) ability to represent ideas in many ways, (6) manipulation of presentation of ideas, (7) communication that is ongoing, (8) formal and informal environments, (9) clear responsibilities and few restrictions, (10) absence of consensus in decision-making, (11) no need to be present physically, (12) outsider input allowed on a selective basis, and (13) collaboration's end. This model has utility in designing the online classroom environment.

Psychological Sense of Community

In the early 1970s, Seymour Sarason, then-director of Yale's Psycho-Educational Clinic, began work on the book *The Psychological Sense of Community: Prospects for a Community Psychology*. In this book, Sarason posed the idea of a psychological sense of community as a foundation from which to develop a community psychology and understand community change. Sarason (1974) felt that psychological sense of community was hard to define but suggested that it was:

> ...the sense that one was part of a readily available, mutually supportive network of relationships upon which one could depend and as a result of which one did not experience sustained feelings of loneliness that impel one to actions or to adopting a style of living masking anxiety and setting the stage for later and more destructive anguish. (p. 1)

Sarason (1974) suggests that relationships which are only available on occasion, as is the case when friends and family live far away, only make one feel more of a lack of sense of community. When one experiences a lack of psychological sense of community there is no mistaking that it is missing (Sarason, 1974). Today this might not be the case for all. Current technologies, notably electronic mail and instant messaging, allow those who have access to the technology to stay in touch with people not in close proximity and thus, distance ceases to be a factor in sense of community (see section on virtual community). Others define sense of community as a result of interaction and deliberation by people brought together by similar interests and common goals (Westheimer & Kahne, 1993), and as an environment where people interact in a cohesive manner, continually reflecting upon the work of the group while always respecting the differences individual members bring to the group (Graves, 1992).

Some feel that the long distance learner is a lonely learner and that computer learning environments cannot duplicate the community of the classroom (Eastmond, 1995). Cook (1995) refutes this argument based on the notion that the sense of community in some traditional classrooms may be false. Defining communities based on shared interests instead of geographic space allows for the idea of an electronic community.

Upon review of the literature, Hill (1996) found fewer than thirty published research studies designed to measure a psychological sense of community directly. Many of these studies are factor analytic studies of psychological sense of community. McMillan and Chavis (1986) have presented the only theoretical discussion of the dimensions of psychological sense of community suggesting that more research needs to be done, in various settings, in order to reach agreement on specific components relating to psychological sense of community (Hill, 1996). The current study will contribute to this need. The research does seem to suggest that psychological sense of community appears to be setting-specific (Hill, 1996). There have been no studies on the development of psychological sense of community in the urban community college online classroom setting. Studies of this nature are important as the success of distance education may depend on how students who have never physically met one another attempt to establish a sense of classroom community.

Characteristics of a psychological sense of community include: 1) the feeling one has that he/she is similar to others, 2) interdependence with others, 3) the willingness to give and take from one another in order to maintain interdependence, and 4) the feeling of being part of some larger, dependable and stable structure (Sarason, 1974). Sarason adds:

> The psychological sense of community is a transient experience that is always preceded and sooner or later followed by some kind of conflict or tension between individual and group norms or interests, or between different groups. This tension is inevitable and in itself should not be regarded as either negative or avoidable. (p. 273)

Sarason (1974) defines a destructive situation to be one where the larger group completely overwhelms or inhibits the individual or, conversely, where individuality is coveted to the point that the individual feels no sense of community. In order for the psychological sense of community to remain strong, the individual must make accommodations and sacrifices to the group and the group must allow some degree of individuality (Sarason, 1974).

Many others have since built upon the work of Sarason, including McMillan and Chavis. In 1976, McMillan defined sense of community based on the earlier work of Sarason: "Sense of community is a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together" (McMillan, 1986, p. 9). In 1986 McMillan and Chavis expanded upon this definition to include four specific dimensions which must be present in order to feel a sense of community.

The first dimension is labeled membership and is defined by boundaries. In other words, some people can be members and some cannot. McMillan and Chavis (1986) suggest that "membership is the feeling of belonging or of sharing a sense of personal relatedness" (p. 9). The second dimension is the idea of influence. McMillan and Chavis (1986) state that influence is "a sense of mattering, of making a difference to a group and of the group mattering to its members" (p. 9). The third dimension introduces reinforcement: integration and fulfillment of needs. McMillan and Chavis (1986) define reinforcement as "the feeling that members' needs will be met by the resources received through their membership in the group" (p. 9). The fourth dimension is shared emotional connection, and is described by McMillan and Chavis (1986) as "the commitment and

belief that members have shared and will share history, common places, time together, and similar experiences" (p. 9). Durkheim (1932) alluded to the state of *anomie* (social void) experienced by urban dwellers resulting from the loss of the sense of participation that comes with being a member of a close-knit community.

McMillan further revised the 1986 definition of sense of community in 1996 by rearranging and renaming the four original dimensions. The new dimensions became spirit, trust, trade/interaction, and art/learning (McMillan, 1996). Spirit replaced the original dimension of membership. Spirit is still defined by boundaries lending emotional safety and refers to the spark of friendship that leads one to feel connected to others (McMillan, 1996). The degree of spirit is analyzed by trust, which has to exist in order for sense of community to exist. Within communities people must feel that it is safe to tell the truth. Trust becomes the second dimension replacing influence in the original definition (McMillan, 1996). Once spirit and trust have been established members can begin to trade/interact with one another. Trade/interaction becomes the third dimension replacing reinforcement: integration of needs in the original definition. Members begin to shift their focus away from similarities among members to differences between members. Real trading can take place only when one member has something another member does not. To strengthen sense of community, trades must be fair and the community must not keep a scorecard of who has traded and who has not (McMillan, 1996). Art/learning replaces the original fourth dimension of shared emotional connection in time and space. Art/learning represents the community's story as it evolved from formation of spirit, trust, and trade. The community's experiences are the foundation of its art/learning. In order to have experiences the people within the

community must have contact with one another. Sense of community will not develop without contact between members. The art/learning serves to reinforce the spirit forming a perpetual cycle (McMillan, 1996). These four dimensions are the basis of the Sense of Classroom Community Index developed by Rovai et al (2000) and used in this research.

Determining sense of community involves looking at those factors that affect people psychologically. People's interactions are influenced by how they feel and how they evaluate their feelings. An important note is that certain situations/occurrences affect some people negatively (divisively) and some people positively (cohesively) (Sanders, 1975). According to Sanders (1975), four societal traits exist that influence a person's social orientation and interpretation of experiences. These societal traits, as follow, are still seen today and relate to the sense of community one feels.

First, one must address the endless range of choices available to people in society today. Traditionally, societal norms dictated what people were allowed to do. Currently individuals have more societal options than ever before in the areas of career choice, recreation and leisure choices, life-style choices, and choices of peers. Saying that these options exist does not imply that all people can choose all options. Realistically, an individual might qualify for only a few options as a result of limitations placed by income, race, gender, and job opportunities. A sense of community might develop not only through group alliance, but also through group exclusion (Sanders, 1975).

Second, changes occur at such a rapid pace that society is challenged to adjust. Diversity and innovation seem to be the norm. The new seems to be better than the old. People expend a large amount of energy trying to "keep up." Rising expectations lead

people to feel they to can have what everyone else has and, if this does not occur, the result is disillusion. If one begins to feel he/she is falling behind he/she may lose some of the sense of community once felt. Finding unity in such an atmosphere requires dedicated efforts on the part of members within a society. The most noticeable effect on one's sense of community as a result of the tempo of change is seen in the area of customs, conventions, and values within a community. People raised or working in traditional roles find it more difficult to adjust to non-traditional occurrences. If communication ceases to occur, differences arise and sense of community becomes eroded. As people become comfortable with new situations, naturally a sense of community can reappear (Sanders, 1975).

Third, people within a society may not agree on the direction the society should take. Societal sense of community is affected by historical occurrences such as wars, which might bring together or divide a society, and civil rights movements, which might cause societies to reflect inwardly on problems inherent in the societal structure, again uniting or dividing. When societies begin to question themselves and their practices, change begins to occur. Change leads to the setting of new goals that begin to rebuild the sense of community (Sanders, 1975).

Fourth, modern technological society is capable of rapid communication. Learning of tragic occurrences, such as natural disasters, social upheavals, crime and violence tends to highlight situations where a breakdown in sense of community may have occurred. Even if sense of community is strong in areas where tragic events occur, media-exposure may give the impression that sense of community no longer exists (Sanders, 1975).

Taken together, these four factors of modern society, the endless range of choices, the rapid pace of change, disagreement by people on society's direction, and rapid communication, illustrate how sense of community can be eroded and also may point the way to building a new sense of community. Seeking a sense of community, and finding it, reduces "confusion and alienation by linking the individual in a meaningful way to the larger society" (Sanders, 1975).

Few studies have been conducted where components of sense of community were investigated. Royal and Rossi (1996) studied community processes in the workplace and in the high school setting in an effort to begin to develop an understanding of sense of community in different settings, laying a foundation for the research addressed in this study. After exploring and defining the dimensions of community in the workplace and high school setting Royal and Rossi (1996) developed a set of instruments with which to measure community in each setting. This is the process that needs to be followed as new community settings are explored, especially the online community. Psychological sense of community is strong where participants in the community feel similar to others in the community, where there is a feeling of interdependence with others and a willingness to maintain this interdependence in a mutually beneficial give-and-take process, and where participants feel a sense of belonging to a larger, stable, dependable structure (Sarason, 1974). The workplace provides an ideal setting to establish a sense of community as does a school setting. Presence of community serves as a positive motivating force whereas lack of community leads to a feeling of isolation (McPartland, 1994; Rossi & Stringfield, 1995). Research has shown that the sense of community felt by high school students in the school setting is significantly and negatively related to the feelings of loneliness felt

by the students (Pretty, Andrewes, & Collett, 1994). At the college level, students experience a decreased rate of burnout when they feel a greater sense of community in their campus residential environment (McCarthy, Pretty, & Catano, 1990). Several factors relate to improving sense of community in the school setting. They are: length of time/grade level in school, participation in extracurricular events, and smaller community sizes as subunits of the larger school (Royal & Rossi, 1996). As students feel more comfortable in their classroom community, they are more able to draw on the skills, knowledge, and capabilities of others in the community, which leads to more positive outcomes (i.e., better grades, better class attendance, lower rates of dropout and burnout, and better self-knowledge) (Coleman & Hoffer, 1987; Bryk & Driscoll, 1988). Sense of community in the school setting was the primary correlate to feelings of well-being of adolescent females (Pretty, Conroy, Dugay, & Fowler, 1996).

One might anticipate that diversity of individuals within a community might make developing a sense of community more difficult. Bryk and Driscoll (1988) suggest homogeneity to be most conducive to the development of sense of community in schools. However, Goudy (1990) found homogeneity to be the least highly valued social component in a residential community (Goudy, 1990). The online classroom community has the potential to be very diverse because there are few restrictions upon who can enroll in an online course. As our society becomes increasingly diverse, the issue of heterogeneity becomes more central to the online learning environment.

Community

The term community can have two meanings according to Gusfield (1975). A community can be defined by territory or geography as in a neighborhood or city or by

the quality of a human relationship (i.e., developing community with others of similar interests with no reference to location). Furthermore, because of technology, people of today can join communities that are developed around similar interests and skills and not necessarily location. Durkheim (1964) found this formation of community around like interests and skills to be true. Although different in a physical sense, both types of community can and do have similar characteristics.

Communities of the past, according to traditional definition, were developed to meet the functional needs of a particular group (i.e., clothing, shelter, food, education, health). This evolution allowed the group to be productive and to maintain social order (Shaffer & Anundsen, 1993). By necessity, community members were in geographic proximity, with functional communities found in urban and rural areas (Shaffer & Anundsen, 1993). Internal community dynamics and individual member fulfillment were not the focus of these communities (Shaffer & Anundsen, 1993). Nurturing personal needs became the focus of conscious communities, which emerged from functional communities, whereby individual needs were honored simultaneously with those of the group (Shaffer & Anundsen, 1993). Today, we find communities that address both functionality and consciousness where individual members are nurtured and grow, yet the community as a whole is able to accomplish goals germane to the survival of the group. Members need not be located in geographic proximity (Shaffer & Anundsen, 1993). Past and present communities have in common the element of commitment. Members must embody trust, honesty, compassion, and respect in order for the group to survive (Shaffer & Anundsen, 1993). Communities of today differ in one way from those of the past in that people are able to choose whether or not to join. In the past, community membership

was often dictated by laws (i.e., Jim Crow laws did not allow for African Americans to live in white neighborhoods and restricted their use of white facilities) or necessity (i.e., immigrants to the United States often lived together, sharing necessities, because they had no individual means to survive) (Shaffer & Anundsen, 1993). Some feel that the sense of community in the United States is weak (Etzioni, 1993). Putnam (2000) fueled the debate when he published his book *Bowling Alone: The Collapse and Revival of American Community.* In this work he communicated his view that Americans are spending more time alone becoming disconnected from their families, neighbors, communities and the country.

Learning Communities

The literature on learning communities is very extensive. Gabelnick (1990) suggests that

> learning communities...purposefully restructure the curriculum to link together courses or coursework so that students find greater coherence in what they are learning as well as increased intellectual interaction with faculty and fellow students....learning communities are also usually associated with collaborative and active approaches to learning, some form of team teaching, and interdisciplinary themes. (p. 5)

According to Brower and Dettinger (1998), there are seven characteristics common to all learning communities. When designed properly, learning communities reflect that: (1) all participants are learners yet the contributions of each are valued, (2) transformative learning takes place where learners gather, (3) membership is fluid allowing for new members to enter and feel welcome at any time, (4) the personal and social aspects of

participant's lives come together to form the student experience, (5) imparting knowledge is a multidisciplinary task, (6) complex thinking skills are developed in the participants, and (7) evaluation of process and outcomes is an evolving process with modifications made when necessary.

Though not the focus of this research, it is important to note that where learning communities are in place, demonstrated improvement in learning is evident. In a review of the work of David and Roger Johnson of the University of Minnesota, Lewis Perelman (1992) cites over eighty studies where academic performance, social skills and self-esteem were improved in students involved in cooperative leaning communities.

Virtual Learning Community

Virtual communities have been defined as "social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace" (Rheingold, 1993, p. 5). Virtual communities also can be places to access information without participating in the more personal aspects of the community (Rheingold, 1993). Technology has made it possible for people to communicate both synchronously and asynchronously. Where communication can take place learning can take place. Thus, the formation of learning communities in the virtual realm is comprehensible. Virtual learning communities function like any other virtual community when participants make social connections and exchange information under the umbrella of academic achievement. Computer-mediated-communication (CMC) is the foundation of distance-learning programs today. There is a wealth of information available on the use of the

Internet within education (Phipps & Merisotis, 1999; Computer Distance Education Project, 1999; Dumont, 1996, Harasim, 1990).

In the late 1960s the first computer networks were created and virtual communities began forming throughout the military and defense realm (Parks & Floyd, 1996). The earliest civilian virtual communities were the bulletin board systems (BBSs) that appeared in the late 1970s. BBSs used telephone lines to connect personal computers, which allowed users to communicate and exchange information around a network that had no central control point (Rheingold, 1993). Throughout the 1980s and 1990s, the number of people accessing the Internet doubled every year (Intelliquest, 2002). Almost 54% of the total U.S. population over the age of 16 (143 million people) or 245 million households in 2002 use the Internet on a regular basis (9 to 12 hours a week) (Harris Poll, 2002; Intelliquest, 2002). The dominant users were people aged eighteen to twenty-nine (Harris Poll, 2002; Intelliquest, 2002; MediaMark, 2002). Of relevance to this study is the estimate that worldwide Internet users are expected to reach 709 million by January 2004 (Intelliquest, 2002) resulting in incredible access to online education.

The literature strongly supports the fact that there is no significant difference in cognitive achievement between distance learning students and traditional classroom students. Russell (1999) compiled a bibliography of 355 studies where no significant difference in achievement was found when technology was utilized for instruction versus the traditional method of face-to-face classroom instruction. Joy & Garcia (2000) and Phipps & Merisotis (1999) disagree, stating that many of the studies reviewed by Russell were flawed. Expensive technology, especially the Internet, continues to be developed

and utilized as a pedagogical approach for a variety of reasons including technological advances in instructional software and hardware, competition from those offering alternative sources of education, and pressure from internal and external stakeholders (Moore, 1997; Rahm & Reed, 1997).

Palloff and Pratt (1999) suggest that computer-mediated distance learning differs from traditional classroom learning citing interactions among students themselves as a key feature. Equally important are the interactions between the student and faculty member. Palloff and Pratt (1999) suggest that "the formation of a learning community through which knowledge is imparted and meaning co-created sets the stage for successful learning outcomes" (p. 5). Relationships among students and between students and faculty based on their online interactions are the medium through which knowledge is generated (Palloff & Pratt, 1999). Trust is an important component of communication in a virtual community (Ridings, 2000). Palloff & Pratt (2001) suggest that instructors of online courses may benefit from studying group dynamics in order to foster a positive feeling of community.

Several studies have been conducted in an attempt to compare student exam performance in online and traditional classroom settings (Arbaugh, 2000b; Hiltz & Wellman, 1997). Gorham (1988) suggests that it is difficult to compare exam performance across different types of courses and subject matter and that a positive exam score may be more reflective of student compliance than student learning. Arbaugh (2000) studied the effects of technological, pedagogical, and student characteristics on student learning in Internet-based MBA courses. Those factors not significantly associated with student learning included ease of use of course software, flexibility of the

course online environment, and amount of time students spent on the course Website. The only significant findings related to instructor efforts to create an interactive environment. Certainly technology plays a role, but instructor efforts in developing the course structure and assignments lead to more positive learning outcomes. Stokes (2001) found that students enrolled in courses that utilized Web-based modules were satisfied with the learning experience regardless of age, grade point average or temperement. Research, such as the study put forth in this proposal, will contribute to the limited body of knowledge necessary to design and deliver effective online courses.

The dropout rate tends to be higher in distance-education courses than in traditional face-to-face courses (Phipps & Merisotis, 1999) yet little data exists as to why. In a study of disadvantaged students and distance education, the dropout rate was found to be 25% in the distance education courses compared to 8% in the traditional courses (Pim, 1999, as cited in Patton, 2000). However, of those students in the dropout group who were not able to complete their assignments by the due dates, 60-90% would have done so shortly after the due date. This implies that students who drop out as a result of not being able to meet deadlines might be successful given some extra time and encouragement. Data on persistence must be gathered in order to establish reasons for the high dropout rate in an effort to reverse this trend.

Classroom Communities

Meltzoff (1994) states that "although life in the classroom is a social experience, it does not necessarily constitute a community" (p. 14). Classrooms become a place of community as more elements of community are integrated. Elements found favorable to community building are interconnectedness (Bateson, 1979; Berman, 1981; Bowers,

1987; Sullivan, 1982), relationship skill training (Solomon & Solomon, 1987), the development of learning communities (Prawat, 1992; Raywid, 1988), and cooperative learning (Johnson & Johnson, 1989). Little and Sanders (1999) found that without classroom community meaningful communication could not take place.

As Internet-based course offerings increase, online classrooms must be made effective. Research in this area of effectiveness is very limited. However, one study by Adams (2000) examined the online learning environments by surveying 84 students enrolled in English classes offered by one instructor at Southside Virginia Community College in Alberta, Virginia. Adams called these online learning environments E-rooms and found E-rooms to be an integral part of the students' lives whereas traditional classrooms are separate from the rest of the students' lives. The bedroom was most frequently used by students as their E-room (31%), followed by the spare bedroom (11%), living room (5.5%), den/family room (5 %), and other rooms of which there were nineteen (47.5%).

Studying the characteristics of online settings is important. Adams (2000) discusses how the traditional classroom is separate geographically from the rest of the student's lives, but the online classroom is interwoven into the student's lives, reflecting their personal space (i.e., office, lab, library, home, etc.). This personal space might present more distractions to learning than the traditional classroom (Adams, 2000). Studying the online classroom setting, as stated by Adams and pursued by this researcher, presents an ideal topic for research.

Community College Environment

Many educators feel that today's community colleges are in need of an organizational transformation in response to the paradigm shift of educational reform, which focuses on learning verses teaching (O'Banion, 1997; Wingspread Group on Higher Education, 1993; Reynolds & Werner, 1998; Guskin, 1997; Brower & Dettinger, 1998; Barr, 1995; Schuyler, 1997). Barr (1995) suggests that paradigm shifts occur when at least two conditions are met. First, the existing paradigm is unable to explain difficulties or anomalies that arise. (There have been numerous reports since the publication of *A Nation at Risk* in 1983 stating that our schools and colleges are in 'crisis' and are not getting the job done.) Second, an alternative paradigm must exist that not only accounts for all that is in the original paradigm, but also offers solutions for the major difficulties facing the current paradigm. Barr (1995) suggests that the learning-centered paradigm meets these two conditions. The traditional mission of the community college has been that "the community college should be the nation's premier teaching institution" (Commission on the Future of Community Colleges, 1988, p. 25). The paradigm shift is occurring at a time when colleges and universities have fewer resources available to them (Guskin, 1997; Leider, 1998) yet the demand for improved learning outcomes for students at all stages of educational instruction continues to rise. Community colleges find themselves competing with companies such as Disney and Microsoft for student enrollment (Leider, 1998). Many community colleges are redefining themselves by becoming learning institutions versus teaching institutions. Doucette (1998) states that "community colleges will prosper if they do what they do best: provide high-quality support services to help students learn - regardless of where

they get their information" (p. 3). While not the specific focus of this research, an in-depth look at the learning revolution will help to frame the current study, as offering online courses may be one way to help with the transformation. Can distance education, especially online education, allow community colleges to compete with the corporate world and meet the needs of their students?

The educators in the United States have put forth significant energy in an effort to be innovative. The focus of these innovations has not been on learning but rather on structures, organizational charts, administrative processes, faculty, teaching, business partnerships and Total Quality Management (TQM) to name a few (McClenney, 1998). Graff (1996) defines a learning organization to be "one in which the organization itself is committed to individual growth, learning, and creativity as a necessary path to institutional growth" (p. 1). "The learning college places learning first and provides educational experiences for learners anyway, anyplace, anytime" (O'Banion, 1997, p. 47). The underlying assumption of the learning college is that the learner is at the center of all activities within the institution, not the institution itself or its staff (O'Banion, 1997). This is the paradigm shift - describing what education would be like organized around learning versus teaching. The learning college is based on six key principles:

- The learning college creates substantive change in individual learners.
- The learning college engages learners as full partners in the learning process, with learners assuming primary responsibility for their own choices.
- The learning college creates and offers as many options for learning as possible.
- The learning college assists learners to form and participate in collaborative

learning activities.

- The learning college defines the roles of learning facilitators by the needs of the learners.
- The learning college and its learning facilitators succeed only when improved and expanded learning can be documented for its learners (O'Banion, 1997, p. 47).

The first principle is the foundation for all learning college activities: "Learners will be exploring and experimenting with new and expanded versions of what they can become" (O'Banion, 1997, p. 49). Learners will become full partners in the learning process and assume responsibility for their own choices by creating a personal profile in consultation with an expert assessor (principle two). This profile will delineate what the learner knows, wants to know, and needs to know. From this profile a personal learning plan will be developed. The learner agrees to this learning plan by negotiating a contract, which outlines the responsibilities of both the learner and the learning college (O'Banion, 1997). Creating as many options for learning as possible will include options of time, place, structure, and methods of delivery (principle three). The learner will have to acquire certain competencies in order to choose an option and achieve certain outcomes in order to complete the option. Learners will have the ability to choose any options they need to acquire the skills they desire. Learners will work closely with learning facilitators (O'Banion, 1997). Collaborative learning is an integral component of the learning college based on research verifying improved learning via group interaction (principle four) (Perelman, 1992). Learning facilitators include everyone employed by the learning college from administrators to clerical staff, all directly or indirectly linked

to the learner (principle five). Learning specialists will be needed for various tasks including assessing learner abilities and goals, creating and managing learning options, facilitating technology integration, and evaluating the learning college (O'Banion, 1997). Finally, learning will be assessed and documented through the use of a portfolio assessment (principle six) (O'Banion, 1977).

O'Banion (1997) states that

> the portfolio, in the form of a 'smart card,' will include a summary of assessment information gathered at the point of initial engagement; the learning contract; competencies achieved; samples of work; experience logged; external evaluations by employers, supervisors, and collaborators; grades and test scores if applicable; evaluations and observations by learning facilitators and other specialists; self- and peer-evaluations; and a log by the learner continually analyzing the portfolio process. (p. 61)

Community colleges face several barriers that could hinder their transformation to learning institutions. The goal of the learning college is to develop within the learner a sense of independence and a desire to be a lifelong learner. However, a major characteristic of the community college student is that he/she often is a dependent, first-generation student. Such a student will require careful attention and support in the learning college (as he/she does in the traditional model): "Community colleges will have to provide the support at the front end if students are to have any hope of succeeding in this unfamiliar territory" (O'Banion, 1997, p. 51). Offering hundreds of learning options at different times, places and on different levels will require a very sophisticated management system in order for the learning college to function: "These learning

management systems are the breakthroughs that will free education from the time-bound, place-bound, and role-bound systems that currently 'manage' the educational enterprise" (O'Banion, 1997, p. 54).

Colleges are experiencing difficulty determining their effectiveness. This in part is due to the lack of a common definition of institutional effectiveness (Roueche, Johnson & Roueche, 1997). Roueche, Johnson and Roueche also cite college staff as being a barrier in that "hesitancy, initial concerns, weak commitment to total unwillingness, as well as outright sabotage by staff members delayed progress toward evaluating college practices" (p. 3). The most critical institutional effectiveness barrier found was the inability or misunderstanding on the part of colleges concerning development of a critical link between mission and effectiveness.

Colleges must collect data in order to evaluate outcomes which give feedback regarding institutional effectiveness. Most colleges are not collecting the data they need to evaluate their success (Roueche, Johnson & Roueche, 1997). McClenney (1998) cites Schorr when discussing potential barriers to innovation. Schorr states:

> Many examples of successful innovation and reform exist in education, however they often do not survive. They often require heroic effort, not sustainable over time. The innovators either burn themselves out or seal themselves off. With ingenuity and external funding, campuses or schools can become hotbeds of innovation without system support, but they usually cannot stay innovative without that support over the long term. (p. 4)

Whether or not the learning paradigm evolves depends on whether the administrative and instructional leadership of higher education is willing to take the

chance. Supporters of the learning paradigm include promoters of instructional and computer technology, the private sector of the technology industry, many community colleges already implementing the learning college (Sinclair, Jackson, Lane, Maricopa, Palomar, Denver) and individual faculty and administrators across the country (O'Banion, 1997). Schuyler (1997) writes that "if advocates continue to promote these reform efforts and colleges see the need to change their methods of instruction and learning, it is more probable that new approaches to teaching and learning will be implemented" (p. 3). Doucette (1997) states that "community colleges must make their mark by understanding learning and delivering upon the long-held promise to support students as they take on their unique learning challenges" (p. 4).

Urban community colleges, through the years, have always taken on the challenges of integrating new technologies. The Computer-Based Distance Education Project (1999) surveyed 1,280 community colleges and found 313 programs where computer-based distance education programs were in place. The following media were used: video cassette (65%), video broadcast (59%), interactive video (35%), print (34%), audio cassette (27%), phone conference (25%), cable broadcast (16%), computer conference (12%), electronic mail (11%), electronic BBS (8%), voice mail (7%), and radio (4%). The following disciplines offered courses: Social Science (74%), Business (69%), Humanities (59%), English (44%), Science (43%), Math (37%), Computers (28%), Medical (14%), Education (11%), and Health (10%). Online courses remain a small percentage of the distance education courses offered by community colleges. As online course offerings increase, the data on effectiveness, such as that collected in this research, will be invaluable.

Even though the name suggests a cohesive body, community colleges often lack a sense of community (McGrath, 1996). Large urban community colleges present a unique challenge to creating and sustaining community, especially since community colleges are not usually residential colleges. While many techniques can be employed to enhance campus community, techniques used to develop a sense of classroom community in the online environment are still under study. Internet-based classes offer students the flexibility to gain an education secondary to their commitments to work and family (McLellan, 1998). Students persist in college when communities are formed which promote meaningful interactions between students and faculty (Bystrom, 1999). The results of the current research will contribute to the task of developing a sense of online classroom community.

Summary

In summary, the literature suggests the need to develop a sense of community in the online environment in order to enhance the student experience and learning outcome. According to McMillan and Chavis (1986), psychological sense of community is comprised of four dimensions: spirit, trust, trade/interaction, and art/learning. For students, establishing a sense of community is vital to their success in their academic endeavors. Chapter II describes several areas of research related to establishing an online classroom environment with positive learning outcomes. There are many references to communities of all sorts, including learning communities, virtual communities, and classroom communities.

Chapter II also gives an overview of the community college environment. The current study will provide empirical evidence to be used to evaluate the online classroom

environment in an urban community college. Chapter III will describe the methodology to be utilized to obtain the data.

CHAPTER III

METHODOLOGY

Introduction

This chapter describes: (a) the purpose of this research; (b) data collection procedures; (c) the location of the research study; (d) variables; (e) sampling design; (f) treatments; (g) instrumentation; (h) instrument validity and reliability; (i) the research design including the possible statistical analysis of the data; (j) confounding variables; and (k) internal and external validity threats.

Purpose

The purpose of this research was to (1) evaluate sense of classroom community as well as feelings of spirit, trust, interaction, and learning, and (2) investigate the relationship between classroom community and academic performance in an urban community college online environment. The following research questions were used to guide this quasi-experimental study:

1. How does the online classroom setting, utilizing a course web page, threaded discussion, and a course listserv, affect student perceptions of spirit, trust, interaction, and learning in an urban community college semester course?
2. How does sense of classroom community differ between students who drop out and those who do not drop out of courses in an online urban community college semester course, which utilizes a course web page, threaded discussion, and a course listserv?
3. How does age affect sense of classroom community of students enrolled in courses in an urban community college semester course, which utilizes a course web page, threaded discussion, and a course listserv?

4. Is there a relationship between sense of classroom community and academic performance in an online urban community college semester course, which utilizes a course web page, threaded discussion, and a course listserv?

Statistical analysis of the survey data was conducted to determine if classroom type effected sense of classroom community or the components of spirit, trust, interaction, or learning in the asynchronous online urban community college classroom setting. Statistical analysis of the survey data was conducted to determine if sense of classroom community effected course grade. Data on age was collected and analyzed to determine the relationship between age and sense of classroom community. Statistical analysis was conducted to determine how sense of classroom community differed between students who dropped out and those who no not drop out of courses in an online urban community college sixteen-week semester course. Items were reverse-scored where necessary to ensure that the most favorable response was always assigned a value of 4 and the least favorable response a value of 0. Therefore, the total possible score on the 40-item questionnaire was 160 (strong sense of classroom community) and the least score was 0 (no sense of classroom community). Descriptive statistics, multivariate analysis, and narrative of the findings were utilized to analyze the results. A forty-item, self-report, Likert scale survey instrument was administered to students enrolled in urban community college online classes (treatment) and urban community college face-to-face classes (comparison group) at the beginning, midpoint, and end of a semester course. An instrument (SCCI) designed to evaluate sense of classroom community as well as feelings of spirit, trust, interaction, and learning developed by Rovai, Lucking and Cristol (2000) was utilized as the primary data collection instrument (see Appendix A). The SCCI

instrument was chosen due to its design to scientifically investigate classroom community based on the theory of sense of community developed by McMillan (1976) and revised in 1996. McMillan's (1976) original work described sense of community in terms of belonging, mattering, faith and shared commitment of members. Revisions were made to the sense of community theory and four dimensions of community were identified: (1) spirit - membership refers to one's sense of belonging, acceptance; (2) trust - one feels that the community can be trusted, influence develops, order is established, and group norms are identified; (3) trade/interaction - one feels that mutual benefit comes from community; and (4) art/learning - shared emotional connection in time and space, which develops only when members have contact with one another (McMillan, 1996). This study concentrated on sense of classroom community and feelings of spirit, trust, interaction, and learning, the relationship between sense of classroom community and academic performance, sense of classroom community in dropouts verses non-dropouts, and the relationship between sense of classroom community and age.

In order to capture the most immediate and precise reactions of participants to the classroom environment, data was collected face-to-face or online via e-mail three times throughout the sixteen-week semester. A survey was the ideal method of data collection for a study of this type due to economy of design, rapid return of responses, and the ability to study a population from a small group of people (Creswell, 1994).

Data Collection Procedures

The survey was administered directly in the classroom or accessed online via the course web site three times over one semester (sixteen weeks) by students enrolled in

College Algebra and Statistics courses of the same course number and taught by the same instructor. Administration of the survey was at the beginning of the course, midpoint, and at the end of the course representing the three levels of the independent variable trial. Survey instruments were presented and collected by the researcher ten minutes prior to the end of a class session if the class was face-to-face in order to allow for late arrivals and give the instructor an opportunity to end instruction and leave the room. Students in the online courses were requested to complete the survey and email the completed survey to the researcher at the specified intervals.

Subject participation was voluntary. Each surveyed course received similar orientations (see Appendices B and C). In order to improve the volunteer rate, the following actions were taken as recommended by Ary, Jacobs, & Razavieh (1996):

1. The request to volunteer was made in a non-threatening manner.
2. Data confidentiality was assured.
3. The study's importance was stressed.
3. Requirements imposed on volunteers were brief and conducted during normal class time.
4. Appreciation was expressed to participants for their participation and cooperation.
5. A request for immediate return was made to those participants completing the online survey.

Research Location

Research was conducted at Tidewater Community College, an urban, four-campus, Virginia community college that provided college credit education for 31,676 individuals in 2000-2001 (Tidewater Community College). The four campuses are

located in the cities of Virginia Beach, Chesapeake, Portsmouth, and Norfolk. Data were collected at the Virginia Beach campus. Virginia Beach is a city of 425,000 people located in the Hampton Roads metropolitan area with a population of 1.5 million (U. S. Bureau of the Census, 2000). Sixty-three different courses were offered online during Spring 2002. Most online courses utilize Blackboard online delivery software (Tidewater Community College, 2002).

Variables

There were four independent variables and six dependent variables in this study. The six dependent variables were operationalized using items on the survey questionnaire.

Variables:

Independent Variable 1: Trial

3 levels:

Level 1: Pre (beginning of course)

Level 2: Mid (midpoint of course)

Level 3: Post (end of course)

Independent Variable 2: Type (classroom setting)

2 levels:

Level 1: Face-to-face classes

Level 2: Asynchronous online classes

Independent Variable 3: Student Status

2 levels:

Level 1: Dropouts

Level 2: Non-dropouts

Independent Variable 4: Age

2 levels:

Level 1: Age 22 or less

Level 2: Age 23 or more

Five dependent variables were affective variables measured on a Likert scale with potential responses: strongly agree, agree, neutral, disagree, and strongly disagree. The sixth dependent variable was academic performance based on numerical course grade.

Dependent Variable 1: Sense of Classroom Community

5 Levels, when scored given a value of 0-4

Dependent Variable 2: Spirit

5 Levels, when scored given a value of 0-4

Dependent Variable 3: Trust

5 Levels, when scored given a value of 0-4

Dependent Variable 4: Interaction

5 Levels, when scored given a value of 0-4

Dependent Variable 5: Learning

5 Levels, when scored given a value of 0-4

Dependent Variable 6: Academic Performance

5 Levels, when scored given a value of 0-4

The variables are defined as:

Trial Independent Variable

Three survey administrations were conducted at the beginning, midpoint, and end of a course. At least four weeks separated each administration.

Type (classroom setting) Independent Variable

The classroom setting was be either face-to-face (teacher and students in the same geographical location) or asynchronous online (teacher and instructor separated by time and place).

Student Status

Student status was defined as either drop-outs (those students dropping out within the first 8 weeks of the course) or non-drop-outs (those students who complete the course).

Dependent Variables

a) Sense of classroom community (SCC): individual perception of sense of classroom community as measured by SCCI (Appendix A).

b) Spirit (S): perceptions of sense of spirit as measured by SCCI (Appendix A).

c) Trust (T): perceptions of sense of trust as measured by SCCI (Appendix A).

d) Interaction (I): perceptions of sense of interaction as measured by SCCI (Appendix A).

e) Learning (L): perceptions of sense of learning as measured by SCCI (Appendix A).

f) Academic performance (AP): final numerical course grade.

Instrumentation

The data collection instrumentation for the study consisted of instructions, and the student survey instrument. Completion time was estimated to be ten minutes per survey

administration. The Sense of Classroom Community Index (SCCI) (Appendix A) developed by Rovai et al (2000), a forty-item, self-report, Likert scale survey, has four subscales: (1) spirit - membership refers to one's sense of belonging, acceptance; (2) trust - one feels that the community can be trusted, influence is developed, order is established, and group norms are identified; (3) trade/interaction - one feels that mutual benefit comes from community; and (4) art/learning - shared emotional connection in time and space developed only when members have contact with one another (McMillan, 1996).

Instrument Validity and Reliability

The Sense of Classroom Community Index (SCCI) instrument was developed and revised at Old Dominion University in Norfolk, Virginia during the 1998/1999 and 1999/2000 academic years. The SCCI consisted of 40 items with four subscales (10 items each).

The SCCI had high face validity. SCCI items appeared to measure what they purported to measure. The survey had a Flesch reading ease score of 81.1 out of a 100 (Rovai, 2001). The higher the score the easier the document was to understand. The SCCI has a Flesch-Kincaid grade level score of 4.0 (Rovai, 2001), which reflected that the SCCI used language suitable for the target population.

The SCCI had high content and construct validities. According to Rovai (2001), the SCCI was developed based upon the McMillan and Chavis (1986) concept of community which included the four components of classroom community (spirit, trust, interaction, learning) and the idea of classroom community as it related to educational setting. The SCCI was evaluated by a panel of three university professors who taught courses in educational psychology. Utilizing a four-point Likert scale rating (3 - totally

relevant to 0 - totally not relevant), the panelists rated the SCCI. The mean score for each SCCI item ranged from a high of 3.00 to a low of 2.33 (Rovai, 2001).

The SCCI had very high reliability. The internal consistencies, determined using Cronbach's Alpha, of the SCCI and each subscale in a sample (N=511) of undergraduate and graduate university students were as follows (Rovai, 2001):

Scale	Reliability
SCCI	.96
Spirit	.90
Trust	.84
Interaction	.84
Learning	.88

High Cronbach Alpha scores revealed the high internal consistency of the SCCI and that the SCCI was a reliable measure of classroom community of post-secondary students.

Sampling Design

The target population for this study was those students enrolled in the same course in either a face-to-face or online environment taught by the same instructor in any urban community college. The experimentally accessible population for this study was any student enrolled in College Algebra or Statistics in either a face-to-face or online environment taught by the same instructor on any campus of Tidewater Community College. Each classroom setting was sampled using intact groups.

All faculty who taught identical courses with these two classroom settings were approached and asked to allow the researcher to survey the courses to ensure n>50 sample sizes from each setting. The intact groups chosen across each classroom setting were students enrolled in the following classes: College Algebra, and Statistics. An

adequate number of semesters when College Algebra and Statistics were offered were surveyed to ensure n>50 sample sizes from each setting.

Assumptions

Participants were chosen on the assumption that the two treatment groups shared similar characteristics based on:

(a) Course content

(b) Instructor

(c) Motivation

(d) Educational training

The subject pool for this study was a non-stratified purposive sample, consisting of Tidewater Community College students participating in the previously described class settings, who completed the course and received a grade. Stratification was not a primary objective of this research.

The alpha level for this research was set at .05. Effect size was projected to be large, and a sample size (n) of greater than 50 for each classroom setting was used as a baseline for data collection.

Research Hypotheses and Statistical Analysis Procedures

Data was analyzed utilizing Statistical Package for the Social Sciences (SPSS), SPSS, Inc., Chicago, Ill. Version 10.0.

Student perceptions of sense of classroom community were studied under the following null hypotheses:

($H_0$1) There will be no significant difference in sense of spirit between students enrolled in face-to-face and online classes.

($H_0$2) There will be no significant difference in sense of trust between students enrolled in face-to-face and online classes.

($H_0$3) There will be no significant difference in sense of interaction between students enrolled in face-to-face and online classes.

($H_0$4) There will be no significant difference in sense of learning between students enrolled in face-to-face and online classes.

($H_0$5) There will be no significant difference in sense of classroom community between students who are classified as dropouts versus non-dropouts.

($H_0$6) There will be no significant relationship between sense of classroom community and subject age.

Course outcome was studied under the following null hypothesis:

($H_0$7) There will be no significant relationship in course grade between students who felt a strong sense of classroom community and those who do not.

Means and standard deviations were calculated for the sense of community, spirit, trust, interaction, and learning at each interval of data collection. Various multivariate statistics were computed on the data collected at the three intervals.

Threats to Validity

Confounding Variables

Instructor method was a primary confounding variable. The literature suggested, and it logically followed, that the instructor and his/her efforts in the classroom shaped the student experience in the classroom, positive or negative. Studying different classroom environments with different instructors would make the study of sense of classroom community very complex. In order to control for instructor method only

students in face-to-face and online courses with the same instructor were chosen as potential subjects.

Course content was a primary confounding variable. Courses in some disciplines are taught in an environment that is perhaps more conducive to establishing sense of classroom community than others. For example, certain health science disciplines enroll a group of students and this group progresses through the program as a cohesive learning community. When students are together for every course they often get to know one another well and may feel they belong to a community of learners. This may make the traditional classroom community environment more positive. In contrast, introductory courses with high enrollments every semester that cross all disciplines (English Composition, College Algebra) are taught in environments where students usually do not know one another and may not get to know one another if opportunities to do so are not integrated into the course. The sense of classroom community may be very low in this situation. To control for this potential variation in sense of community in different types of courses, only students enrolled in face-to-face and online courses with identical course numbers were included.

Response rate for the surveys administered via electronic mail were not be equal to that of the face-to-face surveys, which resulted in an unbalanced design. The general linear model was utilized in the analysis; therefore, the unbalanced results were not problematic. Response rate for surveys administered face-to-face was anticipated to be very high as the researcher was present at all administrations and the survey was administered during class time. However, the researcher had no control over the response rate of the students enrolled in the online courses. A student had to return all

three surveys and receive a course grade in order for the researcher to include the survey data in the final analysis. Some students did not return the survey after all three administrations, which resulted in a smaller sample of online surveys available for analysis.

Studying the online environment was the primary focus of this research. In order to encourage a higher response rate the faculty who volunteered to participate in this survey had to agree to award extra credit points for each returned survey. The researcher was able to contact participants by electronic mail and encouraged a higher response by thanking the student each time a survey was returned and by answering questions regarding the study. The researcher also contacted the students to remind them to return the survey at each established interval.

Technology was a confounding variable. In order to enroll students in an online course and conduct a course, a school's computer network must be functional. This might not always be the case. Often online courses do not become fully functional for two to three weeks after the start of the semester. Students may not have adequate access to the technology that facilitates online learning. Software incompatibilities may play a role in the online experience. All of these factors may combine to create a frustrating experience. The researcher designed the study to utilize electronic mail as the mode of administering and receiving the survey. This mode of communication was utilized by most users of the Internet and was independent of software types.

A potential confounding variable relating to response rate was anonymity of responses. Students would potentially be more likely to be honest in their responses if they felt they could respond anonymously. The only identifying component on the

surveys was the last four digits of the participant's social security number. This was used to match the three surveys administered throughout the course and to determine course grade. The researcher was the only person who saw the surveys. The instructor of the courses did not have access to the completed surveys during the study. The instructor was not in the room when the surveys were administered face-to-face. The online surveys were returned to the researcher only. Potential for identification existed if the student used his/her name in their electronic mail address but the student had the choice of whether or not to respond.

A final confounding variable was knowledge by the instructor of the survey's contents. If the instructor knew the types of questions being asked he/she could potentially alter their style of teaching in order to receive more favorable responses. In order to control for this the instructor did not look at the survey during the study. Results were shared pending final evaluation of results.

Threats

The following threats to internal validity of this study possibly occurred. They were: (a) Testing; (b) History; (c) Mortality; (d) Maturation and (e) Interaction of selection and maturation. External threats were: (a) Experimentally accessible population versus the target population.

Each threat and its controls were described as:

Testing

The instrument used in this study was a self-report survey administered three times throughout the course of a semester. Testing could become a threat when subjects who are repeatedly measured using the same test instrument remember previous

responses and reply in the same manner, regardless of their current perceptions. Sufficient recovery time was allowed (at least four weeks between administrations) to offset this threat. Further, the placement of demographic questions at the beginning of the survey helped to control this threat as well. Surveys indicating the participant marked the same response (i.e., neutral) for all forty questions on all three surveys were not utilized.

History

History could be a potential threat as the intact groups might be subjected to different events during the experiments. The repeated measures design of this study combatted this threat by establishing a baseline. The instructor was the same for each set of face-to-face and online courses so there should have been no variability there.

Mortality

Students withdraw from courses for a variety of reasons and to determine all of these reasons was beyond the scope of this research. Surveys were administered at the beginning, midpoint and end of each course. Naturally, students withdrew after the first class session, prior to the official drop date, which occured close to the midpoint of the course. Only data collected from students present for all three administrations of the survey who received a final course grade were utilized in the final analysis. Comparisons were made between dropouts and non-dropouts on the pre-trial and other collected data.

Maturation

The maturation threat could occur when a natural development process was mistaken for the impact of the independent variable on the dependent variable. These developments might be due to emotional, physical, or cognitive/learning differences in

maturation. This study focused on the sense of classroom community in the online environment, not the attainment of new skills and knowledge, which were expected to occur and were contributing factors in the development of a sense of classroom community.

Interaction of selection and maturation

This threat might occur if the selection process unknowingly produced groups that differed in stages of the naturally occurring development process. To control for this multiple intact groups for each treatment and comparison condition were used.

Experimentally accessible population versus the target population

This threat could occur whenever the researcher might attempt to make generalizations beyond the sample chosen to participate in the study. To control for this the researcher was careful not to generalize beyond the specific sample used.

Summary

Chapter III described the methodology to be used in the study of the sense of classroom community in an urban community college online course. Research hypotheses and statistical analyses were discussed. The research design, setting, sampling procedures also were presented. Development of the Sense of Classroom Community Index (SCCI) to be used in the study was described. Study results will be discussed in Chapter IV.

CHAPTER IV

RESULTS

Introduction

Statistical analyses using an alpha level of .05 were conducted and the results are reported in this chapter. The experimentally accessible sample characteristics are reported using descriptive statistics. Chapter IV contains a review of the research questions, a report on the scale reliability of the Sense of Classroom Community Index (SCCI) for this study, a report on data screening where tests of assumptions are discussed and descriptions of the statistical significance of important results are given, and the results of the hypotheses testing. Interpretation of results and discussion are contained in Chapter V.

This quasi-experimental study was designed to investigate the following questions:

1. How does the online classroom setting, utilizing a course web page, threaded discussion, and a course listserv, affect student perceptions of spirit, trust, interaction, and learning in an urban community college semester course?
2. How does sense of classroom community differ between students who drop out and those who do not drop out of courses in an online urban community college semester course, which utilizes a course web page, threaded discussion, and a course listserv?
3. Is there a relationship between age and sense of classroom community of students enrolled in courses in an urban community college semester course, which utilizes a course web page, threaded discussion, and a course listserv?

4. Is there a relationship between sense of classroom community and academic performance in an online urban community college semester course, which utilizes a course web page, threaded discussion, and a course listserv?

Surveys were administered to students enrolled in College Algebra and Statistics courses. A total of three face-to-face Algebra courses and three online Algebra courses were surveyed. A total of seven face-to-face Statistics courses and three online Statistics courses were surveyed. The same instructor taught all courses over three semesters. Online courses had the same course number as their face-to-face counterparts. Participants were those students who completed the course, received a numerical grade, and completed the three surveys throughout the semester.

Surveys were administered to 305 students taking the face-to-face courses. A total of 339 students were enrolled in the on-campus courses, but 34 were absent on the days of the first administration of the survey. Of the students present during the first administration there was 99% participation. Of these 305 students, 4 indicated on the survey that they did not want to participate, 29 dropped out within the first 8 weeks of the course, 1 was auditing, 2 received an incomplete grade (I) and 21 were non-dropouts, but only completed the first administration of the survey. Taking into account the above-mentioned exceptions, 248 students met all criteria for statistical analysis (81% of the original 305).

Surveys were returned from 111 students taking the online courses out of 140 students enrolled (79%). Of these 111 students, 7 completed the survey during administration 2 or 3 only, 14 dropped out within the first 8 weeks of the course, 7 received an incomplete grade (I) and 10 were non-dropouts, but only completed the first

administration of the survey. Taking into account the above-mentioned exceptions, 73 students met all criteria for statistical analysis (79% of the original 111).

Scale Reliability

Scale reliability for the non-dropout group was analyzed to confirm reliability and compatibility with the instrument authors' findings. The internal consistencies, determined using Cronbach's Alpha, of the SCCI and each subscale in the non-dropout sample (N=321) are as follows:

Scale	Reliability
SCCI	.96
Spirit	.87
Trust	.87
Interaction	.83
Learning	. 87

These high Cronbach Alpha scores are consistent with the SCCI author's results as reported in Chapter III and reveal that the SCCI is a reliable measure of classroom community of post-secondary students.

Data Screening

According to the SPSS vs. 10 program the data contained no outliers. Outliers are cases with values between 1.5 and 3 box lengths from the upper or lower edge of the box. The box length is the interquartile range (George & Mallery, 2001). The data were checked for linearity, normality, and homoscedasticity. Histograms were used to assess normality. The data were normally distributed. An analysis of bivariate scatterplots revealed that the data was linear with normal variance. Data also were checked for multicolinearity and singularity and both were found to be low. Data were checked for

skewness and kurtosis. Skewness and kurtosis values were all within -2 and +2, which is considered acceptable (George & Mallery, 2001).

Descriptive Results

There were 321 complete cases within the non-dropout sample, 73 students from the online setting and 248 students from the face-to-face setting. In addition, 42 cases were analyzed that were classified as the dropout sample, 28 students from the on-campus setting and 14 students from the online setting. Table 1 provides age and gender summary statistics of all groups.

Table 1

Age and Gender Summary Statistics

	Dropouts		Non-dropouts	
Age	Face-to-face (n=28)	Online (n=14)	Face-to-face (n=248)	Online (n=73)
≤22	21 (75%)	5 (36%)	135 (54%)	15 (21%)
>22	7 (25%)	9 (64%)	113 (46%)	58 (79%)
Gender				
Females	15 (54%)	10 (71%)	182 (73%)	48 (66%)
Males	13 (46%)	4 (29%)	66 (27%)	25 (34%)

There were 321 students (248 face-to-face and 73 online) in the non-dropout group and 42 students (28 face-to-face and 14 online) in the dropout group. The dropout and non-dropout groups were similar in that there were more females enrolled than males (dropout group - 60% females, 40% males; non-dropout group - 72% female, 28% male).

In the non-dropout face-to-face group there were more students enrolled who were equal to or under the age of 22 (54%). In the non-dropout online group the majority of the students was over the age of 22 (79%). In the dropout face-to-face group there were more students enrolled who were equal to or under the age of 22 (75%). In the dropout online group, the majority of the students was over the age of 22 (64%).

Spirit, trust, interaction, learning and sense of community means were computed for the non-dropout group. Results are displayed in Table 2.

Table 2

Mean scores and standard deviations on dependent measures by group - (non-dropouts)

	Face-to-face group (n=248)		Online group (n=73)	
Variables	M	S.D.	M	S.D.
Spirit	25.45	4.98	22.27	5.67
Trust	26.67	4.92	24.91	5.10
Interaction	26.30	4.46	24.21	4.93
Learning	27.13	4.76	25.69	5.05
Sense of community	105.45	18.19	97.02	19.88

In the non-dropout group, the face-to-face group scored higher on spirit, trust, interaction, learning, and sense of community than the online group. These differences were found to be significant as will be discussed in the section, Testing of Hypotheses.

Spirit, trust, interaction, learning and sense of community means were conducted for the dropout group on only the pre-scores as these were the only scores obtained for

the dropout group. Results are displayed in Table 3. In the dropout group, the face-to-face group scored higher only on spirit than the online group. These were not significant differences as will be discussed in the section, Testing of Hypotheses. There were no significant differences between the non-dropout group and the dropout group on the measures of spirit, trust, interaction, learning, and sense of community as will be discussed in the section, Testing of Hypotheses.

Table 3

Mean scores and standard deviations on dependent measures by group - (dropouts)

	Face-to-face group (n=28)		Online group (n=14)	
Variables	M	S.D.	M	S.D.
Spirit	23.82	4.15	23.43	4.70
Trust	26.36	3.50	27.46	3.86
Interaction	25.36	3.82	25.36	3.99
Learning	26.68	3.37	27.57	3.13
Sense of community	102.18	12.94	103.71	14.50

Table 4 provides a summary of sense of community scores by age and group (face-to-face or online). Students in the 23 or older age category experienced a higher sense of community but the difference was not significant. These results will be discussed further in the section, Testing of Hypotheses.

Table 4

Mean scores and standard deviations on the dependent measure Sense of Community by age and group

	Face-to-face group (n = 248)		Online group (n= 73)	
Age	M	S.D.	M	S.D.
22 or less	101.52	22.60	85.20	27.90
23 or more	105.59	23.01	96.31	23.70

There was no significant correlation between age and sense of community when group and pre-scores were controlled (r=.0425, p<.05). These results will be discussed in the section, Testing of Hypotheses.

Table 5 provides a summary of sense of community scores by grade and group (face-to-face or online). Students making grades within the 90-100 range earned a course grade of A, within the 80-89 range a B, within the 70-79 range a C, within the 60-69 range a D, and within the 50-59 range an F. Students in the face-to-face group who earned A grades scored highest on Sense of Community. Students in the online group who earned C grades scored highest on Sense of Community. These results will be discussed in the section, Testing of Hypotheses. There was no significant correlation between grade and sense of community when age, group and pre-scores were controlled (ρ_r=.0691, p<.05). Upon further investigation, a significant positive slight correlation was found between grade and the sub-scale of interaction (ρ_r=.121, p<.05). These results will be discussed in the section, Testing of Hypotheses.

Table 5

Mean scores and standard deviations on the dependent measure Sense of Community by grade and group

	Face-to-face group (n = 248)		Online group (n= 73)	
Grade	M	S.D.	M	S.D.
90-100	109.97	23.26	91.22	20.03
80-89	105.27	24.34	93.67	26.50
70-79	96.31	22.39	100.72	27.06
60-69	104.12	17.88	84.67	28.22
50-59	103.34	22.83	86.25	23.75

Testing of Hypotheses

Hypotheses testing was conducted using a variety of statistical techniques appropriate to each specific question. Research questions one and two were hypotheses of difference questions grouped on the independent variable of group (face-to-face or online) for the dependent variables spirit, trust, interaction, learning, and sense of community. Research questions three and four were hypotheses of association questions between sense of community and academic performance and age.

Research Question One

A MANCOVA model was used to test the following null hypotheses:

($H_0$1) There will be no significant difference in sense of spirit between students enrolled in face-to-face and in online classes.

($H_0$2) There will be no significant difference in sense of trust between students enrolled in face-to-face and in online classes.

($H_0$3) There will be no significant difference in sense of interaction between students enrolled in face-to-face and in online classes.

($H_0$4) There will be no significant difference in sense of learning between students enrolled in face-to-face and in online classes.

The dependent variables of post-spirit, post-trust, post-interaction, and post-learning were found to be conceptually linked (Rovai et al., 2000). Results of evaluations of assumptions of normality, homogeneity of covariance matrices and independence of observations were satisfactory. MANCOVA is superior to multiple ANCOVAs as it guards against the chance of committing a Type I error (Kachigan, 1986). The between-subjects factor was group (face-to-face or online). The covariables were the pre-scores for spirit, trust, interaction, and learning.

Results indicate that the main effect of group was significant for post-spirit, post-trust, and post-interaction. Therefore, the null hypotheses of no differences among the two groups are not supported for post-spirit, post-trust, and post-interaction. The null hypothesis that no difference exists between perceptions of learning and group was upheld. Table 6 displays these results.

Table 6

Multiple Analysis of Covariance of post-spirit, post-trust, post-interaction, and post-learning

Source	SS	DF	MS	F
Post-spirit	164.521	1	164.521	6.127*
Post-trust	198.464	1	198.464	7.510*
Post-interaction	84.953	1	84.953	3.895*
Post-learning	13.684	1	13.684	.507

*$p<.05$

Although no post hoc test was necessary for the omnibus test, a post hoc discriminant function analysis was completed to explore whether or not the individual SCCI questions could be used to predict group membership. Specifically, what questions on the SCCI would allow one to discriminate between the two groups of face-to-face and online. The overall Wilks' lambda was significant, $\Lambda=.634$, $\chi^2(17, N=321)=140.910$, $p=.001$, indicating that overall the predictors differentiated between the face-to-face group and the online group. The predictor questions are as follows:

Question 1: I feel a sense of personal isolation in this course.

Question 2: I feel questioning is encouraged in this course.

Question 4: I sense a warm, caring, and supportive climate.

Question 7: I am not required to do much critical thinking.

Question 8: I am recognized for my contributions and achievements.

Question 11: I feel a sense of cohesion.

Question 13: I feel I learn from other students as well as the instructor.

Question 14: I feel there is no group identity.

Question 15: I feel uncomfortable expressing concerns openly.

Question 16: I feel that I belong in this course.

Question 17: I feel confused about course direction and purpose.

Question 18: I trust others to safeguard my interests.

Question 20: I believe there is little active creation of knowledge and meaning.

Question 23: I feel this course stimulates friendships and social bonds.

Question 29: I feel this course is dominated by a few individuals.

Question 33: I do not feel a shared responsibility for the learning of others.

Question 37: I do not feel emotional connections to others in this course.

The standardized canonical discriminant function coefficients indicated that the most important predictor was Question 16: I feel that I belong in this course (.666). The predictors and their discriminant function coefficients are displayed in Table 7.

Table 7

Discriminant Function Predictors and their coefficients

Predictor	Coefficient
Question 16	.666
Question 29	.654
Question 7	.651
Questoin 37	.649
Question 11	.648

Question 2	.647
Question 4	.647
Question 17	.646
Question 1	.642
Question 14	.642
Question 23	.641
Question 18	.640
Question 8	.638
Question 15	.638
Question 13	.637
Question 20	.637
Question 33	.637

Classification results showed that 83.2% of original grouped cases were classified correctly by the canonical discriminant function. Out of 248 students in the face-to-face group, membership was correctly predicted for 210 students, and out of 73 students in the online group, membership was correctly predicted for 57 students. This classification procedure produces an optimistic estimate of the success of the classification. Consequently, a leave-one-out cross-validation procedure was used to help eliminate this optimistic bias and check the stability of the classification. Using this procedure, each subject is classified into one of the two groups according to the discriminant function computed from all the data except the subject being classified. The proportion of misclassified students after removing the effect of each subject one at a time is the leave-

one-out estimate of misclassification. The leave-one-out correct classification was 80.7%, resulting in 2.5% shrinkage from the original classification accuracy.

Research Question Two

The univariate ANOVA was the model used to test the following null hypothesis:

($H_0$5) There will be no significant difference in sense of classroom community between students who are classified as dropouts versus non-dropouts.

Results of evaluation of the assumptions pertaining to linearity and normality were satisfactory. The between-subjects factors were group (face-to-face or online) and status (dropout or non-dropout) and the dependent variable was the pre-score.

Results indicate that the main effects of group, status or group-status were not significant to the pre-score. Therefore, the null hypothesis of no difference between dropouts and non-dropouts was upheld. Table 8 displays these results.

Table 8

Analysis of Variance of Pre-Sense of Community

Source	SS	DF	MS	F
Group	84.314	1	84.314	.309
Status	162.457	1	162.457	.596
Group-Status	319.478	1	319.478	1.172
Error	97846.328	359	272.552	
Total	4183030.000	362		

*p,.05

Research Question Three

The relationship of the dependent variable sense of community to student age was studied under the following hypothesis:

($H_0$6) There will be no significant relationship between sense of classroom community and subject age.

The results of the evaluations of assumptions of linearity, homoscedasticity and normality were acceptable. A Pearson's product-moment correlation (Pearson's r) matrix for age and post sense of community score was prepared. No significant correlation was found between age and sense of community (r=.053, p<.05). Therefore, the hypothesis that there would be no significant relationship between sense of community and student age was upheld.

Research Question Four

The relationship of the dependent variable sense of community to academic performance was studied under the following hypothesis:

($H_0$7) There will be no significant difference in course grade between students who feel a strong sense of classroom community and those who do not.

The results of the evaluations of assumptions of linearity, and homoscedasticity were acceptable but a bivariate scatterplot revealed that the grades were not normally distributed. Therefore, the correlation matrix was prepared using Spearman's rho, which assumes data is not normally distributed. There was no significant correlation between sense of community and course grade in the face-to-face group (ρ_s=.104, p<.05). Therefore, the hypothesis that there would be no significant relationship between sense of community and academic performance was upheld.

Further investigation of sense of community and grade, by completing a correlation matrix using Spearman's rho of grade, post-spirit, post-trust, post-interaction, and post-learning revealed a slight positive correlation between grade and interaction in the face-to-face group (ρ_s=.178, p<.01). Discussion of this result will occur in chapter V.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter includes a: (a) summary of the study, (b) summary and interpretation of the significant findings of this investigation, (c) discussion of the implications of the findings, and (d) suggestions for further research.

Summary of the Study

This study investigated how classroom setting (face-to-face or online) affected student sense of classroom community in the online urban community college classroom. McMillan and Chavis (1996) state that community consists of four dimensions: (a) spirit - feeling that there is a community, emotional safety, feeling connected to others; (b) trust - feeling that the community can be trusted, and it is safe to tell the truth; (c) interaction - feeling that it is mutually beneficial to be in the community, one has a sense of shared values and those values are reinforced; and (d) learning - feeling a shared emotional connection in time and space arising from contact between the members of the community. A body of evidence suggests that a strong feeling of sense of classroom community is related to a more positive student learning experience and achievement gains (Bryk & Driscoll, 1988). These positive outcomes translate into lower drop-out rates, an increase in student-to-student referrals, and a deeper commitment on the part of the student to the institution and program of study (Biner, Dean, & Mellinger, 1994; Tallman, 1994). Rovai, Lucking and Cristol (2000) developed the Sense of Classroom

Index (SCCI) to measure sense of classroom community as theorized by McMillan and Chavis (1996).

It is important to provide a positive learning experience in the online classroom setting as well. Asynchronous Internet instruction was among the top three technologies employed to offer distance education during the 1997/98 academic school year (U.S. Department of Education, 2002) and has grown steadily since, so the implications of providing a positive learning experience in the online classroom are great.

This study sought to answer the following questions using quasi-experimental methodologies:

1. How does the online classroom setting, utilizing a course web page, threaded discussion, and a course listserv, affect student perceptions of spirit, trust, interaction, and learning in an urban community college semester course?
2. How does overall sense of classroom community differ between students who drop out and those who do not drop out of courses in an online urban community college semester course, which utilizes a course web page, threaded discussion, and a course listserv?
3. How does age affect sense of classroom community of students enrolled in courses in an urban community college semester course, which utilizes a course web page, threaded discussion, and a course listserv?
4. Is there a relationship between overall sense of classroom community and academic performance in an online urban community college semester course, which utilizes a course web page, threaded discussion, and a course listserv?

Three hundred and twenty-one students from the two groups were included in the final statistical analysis, 248 in the face-to-face group and 78 in the online group. In addition, 42 students were classified as dropouts. The SCCI surveys were administered to both groups three times throughout the semester in which the student was enrolled. Surveys were administered to students enrolled in College Algebra and Statistics courses. A total of three face-to-face Algebra courses and three online Algebra courses were surveyed. A total of seven face-to-face Statistics courses and three online Statistics courses were surveyed. The same instructor taught all courses over three semesters. Online courses had the same course number as their face-to-face counterparts. Participants were those students who completed the course, received a numerical grade and completed the three surveys throughout the semester.

Summary and Interpretation of Significant Findings

The research questions were studied under the null hypotheses as follows:

($H_0$1) There will be no significant difference in perception of spirit between students enrolled in face-to-face and in online classes.

($H_0$2) There will be no significant difference in perception of trust between students enrolled in face-to-face and in online classes.

($H_0$3) There will be no significant difference in perception of interaction between students enrolled in face-to-face and in online classes.

($H_0$4) There will be no significant difference in perception of learning between students enrolled in face-to-face and in online classes.

($H_0$5) There will be no significant difference in sense of classroom community between students who are classified as dropouts versus non-dropouts.

($H_0$6) There will be no significant relationship between sense of classroom community and subject age.

Course outcome was studied under the following null hypothesis:

($H_0$7) There will be no significant relationship in course grade between students who feel a strong sense of classroom community and those who do not.

Multiple Analysis of Covariance

The two groups (face-to-face and online) were made equal for all dependent variables using prescores as covariates. The MANCOVA model was utilized for statistical testing of hypotheses one through four. The researcher sought to discern whether the classroom setting (face-to-face or online) may have caused differing perceptions of the dependent varibales. The independent variable was group (face-to-face or online) and the dependent variables were post-spirit, post-trust, post-interaction, and post-learning. The co-variables were pre-spirit, pre-trust, pre-interaction, and pre-learning. Results indicated that the main effect of group was significant for post-spirit, post-trust, and post-interaction. Due to significantly higher scores in the face-to-face group, the null hypotheses of no significant differences among the two groups were not supported for post-spirit, post-trust, and post-interaction.

The face-to-face group experienced stronger feelings of spirit, trust, and interaction at the end of the course than the online group. This finding may imply that the flexibility of the online environment might not lead to greater student satisfaction as suggested by some (Leidner & Jarvenpaa, 1995; Brandon & Hollingshead, 1999). The following explanations could be given for the lower scores in the online group: (1) Some students may define community as something that requires face-to-face communication.

Defining community was not a focus of this research. However, the online students may not have even been thinking about values associated with a traditional sense of community during the course of the class. The reason for enrollment for these students could have been only for obtaining academic credit in a way that was convenient. (2) Perhaps some students enrolled in the online classes to avoid being part of a classroom community. Students may have participated only in those activities required for a grade and remained relatively silent throughout the course. (3) Students generally enroll in online courses due to the convenience of obtaining an education around a busy personal and professional life. Perhaps the students in the online courses were too over-committed to fully engage in the course. Therefore, the students could not or would not devote the time necessary for community building. (4) Building spirit, trust and interaction in the online environment relies heavily on technology in order to allow the students to interact via E-mail, a threaded discussion, web board or other communication technology. Students in the online environment may have been hindered by the technology or have been frustrated by the technology available at the community college, which might have contributed to a lower sense of spirit, trust, and interaction. Further research will be needed to explain fully the differences observed between the face-to-face and online groups. The null hypothesis that no significant difference existed between perception of learning and group was upheld. In other words, the students felt that learning occurred equally in the face-to-face and online settings. The finding supports the literature showing that classroom setting has no effect on student success (Hyatt, 1992; Nixon, 1992; Easterday, 1997; Russell, 1999; Wegner, Holloway & Garton, 1999). This is a positive finding for those who offer online classes.

Analysis of Variance

Results of the univariate ANOVA indicated that the main effects of type (face-to-face or online), status (dropout or non-dropout), or type-status were not significant to the prescore. Sense of community was measured only once in the dropout group, at the very beginning of the course. Therefore, the null hypothesis that there will be no significant difference in sense of community between dropouts and non-dropouts was upheld. Consistent with the research (Phipps & Merisotis, 1999), the dropout rate was higher in the online group (12.6%) versus the face-to-face group (9.5%). Data on persistence must be gathered in order to establish reasons for the higher dropout rate in online courses in an effort to reverse the trend. Due to the limited sample size of dropouts, further research needs to be conducted in order to determine whether or not sense of community is compromised at the time the students drop out of a course.

Correlation Analysis

Correlation analysis was undertaken to discern how the predictor variables varied in their inter-relationships between the two groups. Based upon the Pearson's product-moment correlation (Pearson's r) matrix, no significant relationship was found to exist between sense of community and age. This finding supports the research by Stokes (2001) who did not find age to be a predictor of student satisfaction of a digital learning environment. Although not investigated in this study, age has been found to be related to achievement and feelings of social distance with the instructor (Fiebert, 1971). Older and higher achieving students related better to instructors of similar age. Fiebert related this to the possibility that people of similar ages have more in common, find it easier to approach one another, and have a shared set of academic values. Fiebert also felt that

older students might have a higher self-esteem, allowing them to overcome social distance barriers more easily.

Due to a non-normal distribution in course grades, Spearman's rho was utilized to analyze the relationship between sense of community and course grade (George & Mallery, 2001). No significant relationship was found to exist between sense of community and course grade. However, a slightly positive correlation was found between the sub-scale of interaction and course grade in the face-to-face group. This finding supports the literature suggesting that developing social ties from interaction is more difficult without face-to-face interaction (Flaherty, Pearce, & Rubin, 1998; Warkentin, Sayeed, & Hightower, 1997). McMillan and Chavis (1986) suggest that real learning does not take place until spirit, trust, and interaction occur. It is interesting to note that the group of students who scored highest on sense of community in the online environment was those students earning a grade of C, which may support the McMillan and Chavis view that spirit, trust, and interaction have to take place before learning can occur. The online group scored lower on the four domains of spirit, trust, interaction, and learning.

Discussion of Implications of Significant Findings

The results of this study have important implications for urban community college educators as online courses continue to be developed and offered. Educators need to organize courses to ensure that the most effective type of interaction is taking place and that the interaction is suitable for the content area and students with different learning styles. The research suggests that instructors matter in the online setting and may have complete control over interaction and classroom dynamics (Arbaugh, 2000). Therefore,

instructors need to learn skills necessary to promoting effective interaction. Perhaps large online classes will need to be divided into smaller groups in order to foster intimacy and trust among the students. The instructor might need to develop interesting, applicable discussion questions to aid the group in cultivating interacting skills. Study findings suggest that the face-to-face group of students experienced a higher sense of spirit, trust, and interaction than their online counterparts. If one agrees with the research that suggests that developing a sense of community will lead to a more positive course outcome and experience for those students enrolled (Dumont,1996; Grossman,1999; Rovai, 2001) then those instructors who teach online courses would benefit from building community in their online classroom. Instructor efforts, combined with pedagogical strategies that increase students' interactions may increase student satisfaction. Theoretically, curriculum-driven dropout rates might decrease, enrollments might increase, and satisfied students would be more likely to speak positively of their experience thus effectively promoting the online option within the institution. The positive experiences of students could translate into enhanced economic stability for the institution because those students who enjoy the educational experience may continue to pursue their education at the institution. Appropriate monitoring and evaluation of online courses by curriculum and assessment specialists would be imperative.

Classroom setting did not appear to have a significant effect on the subscale of learning. The face-to-face and online groups scored equally as high on the subscale of learning. This might suggest that pedagogical approaches could be more important at this time than the technology in determining the effectiveness of these courses. Those institutions utilizing technology to offer courses online need to be aware of such findings.

However, use of technology plays an integral part in the online course and can have a beneficial or non-beneficial effect. The instructor needs to be familiar with the technology and be able to use course software to enhance, not detract, from the course. Technologies such as video, audio, and Web links can help to enhance the classroom experience by fostering more communication among students and between students and instructors. Communication based on these technologies might lead to an accelerated establishing of sense of community that previously was only based on textual input.

In this study, the online students who experienced the greatest sense of community earned a grade of C in the course. These students may have enjoyed the experience but earning a grade of C might preclude them from repeating the online experience. This could have both positive and negative implications for urban community college educators. If students do not continue to enroll in online courses a significant investment of resources are wasted. If students enroll in online courses, but are academically weak, faculty will need to be trained on how to optimize the learning experience. On the other hand, these "C" students, perhaps academically weak, sought out others for support and assistance, thus contributing to sense of community. Instructors of online courses need tools to help them evaluate the experiences the students may be having and how these relate to course outcome and students need to learn how to become effective consumers of educational experiences.

Recommendations for Further Research

The research conducted thus far on sense of classroom community has only begun to investigate what needs to be done to enhance the online learning environment. This

study contributes to the limited body of knowledge of the urban online community college classroom. There are several directions for further research.

Direction 1

The ability to generalize findings beyond this study is limited because of the small sample size of the online group. A study needs to be done that evaluates sense of community in a larger number of urban online community college courses, not necessarily as they compare to the traditional classroom setting. Dropouts and non-dropouts should be studied. If distance education is a goal of an institution, the focus of future research should be on relating the findings of existing studies to the development of classroom community. Such information could enhance student satisfaction and increase enrollments in the online environment.

Direction 2

The ability to generalize findings beyond the present study is limited because only one community college was sampled. The student characteristics, program content, course design, and pedagogy used by the instructor of the online classes in this study may be different from those at other community colleges. Therefore, it would be beneficial to carry out a study that included a random sampling of small, medium, and large community colleges across the country.

Direction 3

A valuable contribution to the body of online research and sense of community in the urban community college classroom would be to study the relationship between course content and sense of community. Community colleges offer a variety of programs and the online experience may vary by subject being studied. In other words, instructors

of online health science courses, for example, may need to focus on different community-building techniques than instructors of online math classes. Concepts in math classes build upon one another and the instructor must make sure the student is learning each concept before moving on to the next. Accelerating too quickly through a course may result in a poor course outcome if the student did not truly learn the material, and this may result in a negative sense of community (Aberson, Berger, Healy, & Romero, 2001).

Direction 4

Interaction is important in fostering the sense of community. However, there are many types of interactions that could occur. Further research is needed to study specific interactions in the urban online community college classroom. Study should focus on student/student interaction, student/instructor interaction, and student/technology interaction. This researcher feels it is imperative that ongoing assessment of student satisfaction with online courses needs to be implemented and maintained in the urban community college environment.

Direction 5

Studying additional independent variables as they relate to sense of community is one way to build upon this research. An unlimited number of variables could be studied such as online classroom characteristics, instructor immediacy, instructor attitudes towards the online course and technology, instructor experience, student experience with technology, feelings of self-efficacy, attitudes toward self-directed learning, attrition, achievement as a measure of mastery of course content, and student temperament.

Conclusion

Regardless of the lack of research in the area of the urban community college online environment, courses continue to be offered. It is a huge challenge to develop, distribute, and evaluate an online course in a manner that is acceptable to those who enroll in these courses. Successful online distance education courses take time to evolve into ones that best meet student needs. Not all students possess the qualities necessary for success in an online course. Courses should not be developed where students are allowed to enroll if the student possesses only basic computer skills or lacks the adequate equipment needed to efficiently participate in the course. These factors could adversely affect the online classroom environment. There is a large body of research that relates sense of community to a positive learning experience.

A surprising finding of this study was the lack of a statistically significant relationship between sense of community and student age. Despite the literature suggesting that student age does not effect student satisfaction (Stokes, 2001), this researcher felt that older students would be more satisfied with the online course experience as measured by sense of community than younger students. This belief was based on the idea of flexibility of the online course allowing for continuing education in the lives of busy, perhaps over-committed individuals. The findings did not suggest that older students were dissatisfied with the online courses, only that they did not feel a stronger sense of community than the younger students.

Another surprising finding of this study was the lack of a statistically significant difference between sense of community and the subscale of learning in the two groups (face-to-face and online). This researcher felt that the statistical findings of significant

differences between the two groups on the subscales of spirit, trust, and interaction would have led to a similar finding for learning. Both groups felt that learning occurred equally. This finding supports the research that classroom setting has no effect on student success (Hyatt, 1992; Nixon, 1992; Easterday, 1997; Russell, 1999; Wegner, Holloway & Garton, 1999).

One final surprising finding was the lack of a statistically significant relationship between sense of community and course grade. As discussed in the section on summary and interpretation of significant findings, the group of students who scored highest on sense of community in the online setting was those students earning a grade of C. This finding does not suggest that students earning C grades did not enjoy the course. Their higher score on sense of community could have been a direct result of their academic weaknesses, which forced them to seek out support and assistance from others, thus contributing to their sense of community. Therefore, a high sense of commuity does not always correlate with the highest course grade.

This study suggested evidence that students in the traditional face-to-face classroom experience a higher sense of classroom community. Community colleges that value student satisfaction and persistence and wish to expand online course offerings would benefit from teaching instructors how to build and sustain a strong sense of classroom community. It is important to remember that enrollment in online courses does not indicate a demand for and a degree of satisfaction with courses offered. Community-building should continue to be emphasized as it is the sense of community that keeps students in class and enrolled in programs, keeps classrooms fully engaged leading to teacher and student satisfaction, facilitates collaborative learning, and

encourages continued communication after the course is complete for development and career services purposes. These are important considerations for urban community college educators and administrators.

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APPENDIX A

SENSE OF CLASSROOM COMMUNITY INDEX (SCCI)

SENSE OF CLASSROOM COMMUNITY INDEX (SCCI)

IMPORTANT: Please give the last four digits of your SSN to be used for tracking purposes:_____

Please check the categories that apply to you:

Age: ( ) 22 or less, ( ) 23-25, ( ) 26-30, ( ) 31-35, ( ) 36-40, ( ) 40+

Gender: ( ) Female, ( ) Male

DIRECTIONS: Below are a series of statements concerning a specific course you are presently taking or recently completed. Read each statement and place an "x" mark between the parentheses under the label that comes closest to indicate how you feel about the course. There are no correct or incorrect responses to these statements. If you neither agree nor disagree with a statement, place a check mark between the parentheses under the neutral (N) label. Do not spend too much time on any one statement, but give the response that seems to describe how you feel about the course. ***Please respond to all items.***

Strongly Agree (SA)
Agree (A)
Neutral (N)
Disagree (D)
Strongly Disagree (SD)

	SA A N D SD
1. I feel a sense of personal isolation in this course.	( )( )( )( )( )
2. I feel questioning is encouraged in this course.	( )( )( )( )( )
3. I feel the feedback I receive is insincere.	( )( )( )( )( )
4. I sense a warm, caring, and supportive climate.	( )( )( )( )( )
5. I feel there are many misunderstandings.	( )( )( )( )( )
6. I do not value the knowledge I am gaining.	( )( )( )( )( )
7. I am not required to do much critical thinking.	( )( )( )( )( )
8. I am recognized for my contributions and achievements.	( )( )( )( )( )
9. I feel there is a two-way free flow of ideas in this course.	( )( )( )( )( )
10. I feel connected to others in this course.	( )( )( )( )( )
11. I feel a sense of cohesion.	( )( )( )( )( )
12. I believe our classroom discussions are open and honest.	( )( )( )( )( )
13. I feel I learn from other students as well as the instructor.	( )( )( )( )( )
14. I feel there is no group identity.	( )( )( )( )( )
15. I feel uncomfortable expressing concerns openly.	( )( )( )( )( )
16. I feel that I belong in this course.	( )( )( )( )( )
17. I feel confused about course direction and purpose.	( )( )( )( )( )
18. I trust others to safeguard my interests.	( )( )( )( )( )
19. I feel that my educational needs are not being satisfied.	( )( )( )( )( )
20. I believe there is little active creation of knowledge and meaning.	( )( )( )( )( )
21. I feel important in this course.	( )( )( )( )( )
22. I feel this course facilitates learning.	( )( )( )( )( )
23. I feel this course stimulates friendships and social bonds.	( )( )( )( )( )
24. I feel a substantial amount of knowledge is generated.	( )( )( )( )( )
25. I do not feel a sense of community.	( )( )( )( )( )
26. I don't feel an intellectual excitement in this course.	( )( )( )( )( )
27. I feel there is loyalty in this course.	( )( )( )( )( )
28. I feel the educational process in this course is learner-centered.	( )( )( )( )( )
29. I feel this course is dominated by a few individuals.	( )( )( )( )( )
30. I feel discussions are mostly one-way and close-minded.	( )( )( )( )( )

31. I receive constructive comments and positive feedback. ( ) ( ) ( ) ( ) ( )
32. I feel the students in this course have similar needs and goals. ( ) ( ) ( ) ( ) ( )
33. I do not feel a shared responsibility for the learning of others. ( ) ( ) ( ) ( ) ( )
34. I feel this course provides personal and intellectual growth. ( ) ( ) ( ) ( ) ( )
35. I feel there is no mutual respect of ideas. ( ) ( ) ( ) ( ) ( )
36. I feel issues are left unresolved. ( ) ( ) ( ) ( ) ( )
37. I do not feel emotional connections to others in this course. ( ) ( ) ( ) ( ) ( )
38. I feel a sense of order in this course. ( ) ( ) ( ) ( ) ( )
39. I feel personal connections to the ideas expressed. ( ) ( ) ( ) ( ) ( )
40. I feel the knowledge I acquire in this course is relevant. ( ) ( ) ( ) ( ) ( )

APPENDIX B

SUBJECT ORIENTATION - ONLINE

This class has been selected to participate in a survey being conducted for dissertation research by Cynthia Cadieux, a doctoral candidate at Old Dominion University. This research has been approved by Tidewater Community College. Please take a few minutes now to complete the survey and return it to the researcher at drcadu@pilot.infi.net . The research examines student perceptions of classroom community in online courses as well as face-to-face courses. A major purpose of this research is to identify which parts of the online classroom students feel are the most helpful in learning. Your participation in this study allows you to offer an important input into the nature of the online classroom. A high volunteer rate will help maintain the validity of the study results and provide the most useful information for faculty designing online courses.

This study study will not affect your grade or lesson content and is strictly voluntary. Surveys will be e-mailed to you three times over the course of this semester and you will return them to the researcher. Your responses will be kept strictly confidential. Only the researcher will see the results. In order to keep all of your surveys together you are being asked to provide the last four digits of your Social Security Number on the first line of the survey. This will allow the researcher to match your three surveys as you return them to me. You should be able to complete the survey in 10-15 minutes. Thank you for your participation in this research.

Instructions for completing the survey:
1. Open the attached Word document.
2. Complete the survey by filling in the last 4 digits of your SSN, your age, gender, and responses to the 40 questions. All you need to do is place an "x" between the parentheses you choose. Please answer all 40 questions.
3. Save the completed survey as a Word document. You may want to title it ODU Survey.
4. Return the survey as an e-mail attachment to: drcadu@pilot.infi.net
5. Please email the researcher at drcadu@pilot.infi.net if you have any questions.

Thank you for your participation in this research. Your responses will be very valuable to the researcher and the field of online education.

APPENDIX C

SUBJECT ORIENTATION - FACE-TO-FACE

This class has been selected to participate in a survey being conducted for dissertation research by Cynthia Cadieux, a doctoral candidate at Old Dominion University. This research has been approved by Tidewater Community College. The research examines student perceptions of classroom community in online courses as well as face-to-face courses. A major purpose of this research is to identify which parts of the classroom setting students feel are the most helpful in learning. Your participation in this study allows you to offer an important input into the nature of the face-to-face classroom. A high volunteer rate will help maintain the validity of the study results and provide the most useful information for faculty designing courses.

This study will not affect your grade or lesson content and is strictly voluntary. Surveys will be administered three times over the course of this semester. Your responses will be kept strictly confidential. Only the researcher will see the results. In order to keep all of your surveys together you are asked to provide the last four digits of your Social Security Number on the first line of the survey. This will allow the researcher to match your three surveys as you return them. You should be able to complete the survey in 10 minutes.

Thank you for participating in this research. Your responses will be very valuable to the researcher and the field of online education.

Instructions for completing the survey.

1. When you receive the survey please write the last 4 digits of your SSN in the space provided.
2. Select your age and gender categories.
3. Place an "x" between the parentheses you choose for each of the 40 questions. Please answer all 40 questions.
4. Please raise your hand if you have any questions.

CURRICULUM VITAE **CYNTHIA P. CADIEUX, MS, RD**

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ACADEMIC PREPARATION

2000 - present	Doctoral candidate - dissertation research in the area of sense of classroom community in online asynchronous urban community college courses
1998 - 2000	Doctoral student - Ph.D. in Urban Services/Urban Education concentration (cognate Higher Education Administration), Old Dominion University
1988 M.S.	Health Sciences (concentration in dietetics), James Madison University, Harrisonburg, VA
1987 B.S.	Dietetics, James Madison University, Harrisonburg, VA

PROFESSIONAL EXPERIENCE

4/02 - present	**Grant Project Manager** - Work Force Development, Tidewater Community College, Norfolk, VA
3/01 - 5/02	**Grant Project Manager** - Networks For Women Tidewater Community College, Norfolk, VA
1/99 - 5/01	**Graduate Assistant (Ph.D. in Urban Services/ Urban Education Program)** Editor - Urban Education Newsletter Old Dominion University, Norfolk, VA
1/93 – present	**Adjunct Faculty** (Assistant Professor as of 1/98) Tidewater Community College, Virginia Beach, VA **Clinical Coordinator** - Dietetic Technician Program
1994-1998	**Certified Nutrition Support Dietitian (C.N.S.D.)**
9/94-5/95 1/97 – 6/97	**Enteral Nutrition Therapist** Redline Healthcare, Norfolk, VA
11/92 – 6/94	**Clinical Nutrition Manager**, ARA Services (currently ARAMARK) at Sentara Norfolk General Hospital, Norfolk, VA

2/91 – 11/92	**Clinical Dietitian** (Burn/Trauma specialty), ARA Services (currently ARAMARK) at Sentara Norfolk General Hospital, Norfolk, VA
10/89 – 12/90	**Administrative/Clinical Dietitian**, Morrison's Custom Management at Westminster-Canterbury, Virginia Beach, VA

PROFESSIONAL AFFILIATIONS

American Dietetic Association (includes Virginia chapter)
Nutrition Educators for Health Professionals (practice group)
Tidewater Dietetic Association
Tidewater Nutrition Council
Virginia Community College Association (1999-present)
American Association of University Women

RESEARCH

Cadieux, CP, Operational Resources Used By Clinical Dietitians in Virginia. Master's Thesis, James Madison University, December 1988, unpublished.

Cadieux, CP, Nutritional Assessment of the Elderly Quadriplegic Patient. Master's Research Project conducted at the Veterans Administration Hospital, Hampton, VA 7/87-12/87, unpublished.

PRESENTATIONS/NEWSLETTER PUBLICATIONS

Spring 2002	Presentation: Skillbuilding for the 21st Century, The Valencia Forum on Aging, Valencia, Spain
Spring 2002	Celebrating Cultural Diversity in Nutrition Education: article for Teaching Innovations column, Nutrition Educators of Health Professionals newsletter
Winter 2002	Resources for Teaching Cultural Diversity: article for Teaching Innovations column, Nutrition Educators of Health Professionals newsletter
Fall 2001	Presentation: Sense of Community in the Urban Online Community College Classroom, American Mathematical Association of Two Year Colleges annual conference, Toronto, Ontario, Canada

Fall 2001	Culturally and Linguistically Appropriate Materials, article for Teaching Innovations column, Nutrition Educators of Health Professionals newsletter
Spring 2001	Nutritional Needs in Parkinson's Disease. Presentation for the 7th Annual Facing the Challenges of Parkinson's Disease conference, Virginia Beach, VA.
Spring 2001	Technology usage and perceived needs of Virginia Dietetic Association members. Poster-session presentation, Fairfax, VA.
Winter 2001	"Collaborative Learning": article for Teaching Dilemmas column, Nutrition Educators of Health Professionals newsletter
Winter 2000	"Nutrition Educator for Medical Assistant Students": article for Teaching Dilemmas column, Nutrition Educators of Health Professionals newsletter
Fall 2000	Facilitator: Technology Update. Workshop presented for the members of the Tidewater Dietetic Association.
Fall 2000	Speaker: Upskilling Workshop presented for the members of the Tidewater Dietetic Association.
Fall 2000	"Malnutrition in Latin America: Opportunity for Multicultural Education": article for Teaching Dilemmas column, Nutrition Educators of Health Professionals newsletter
Summer 2000	"Non-traditional Approaches to Teaching Students About Vitamins": article for Teaching Dilemmas column, Nutrition Educators of Health Professionals newsletter
Summer 2000	Co-developer of the Strategic Plan for the Tidewater Dietetic Association
3/2000	Enhancing Multicultural Competencies in a Dietetic Technician Program: poster session presentation at the Virginia Dietetic Association annual conference, Virginia Beach, VA
Spring 2000	"A New World of Longevity: Butler's Ideas on Vital Aging": article for Teaching Dilemmas column, Nutrition Educators of Health Professionals newsletter

Winter 2000	"Nutrition Educator for Medical Assistant Students": article for Teaching Dilemmas column, Nutrition Educators of Health Professionals newsletter
Fall 1999	"Online Health Information - What Do We Know? What are We Teaching?": article for Teaching Dilemmas column, Nutrition Educators of Health Professionals newsletter
Summer 1999	"What Are We Teaching about Alcohol Abuse and the Elderly?": article for Teaching Dilemmas column, Nutrition Educators of Health Professionals newsletter
3/99	Nutrition Assessment: poster session at the Virginia Dietetic Association annual conference (Charlottesville, VA) and at the Tidewater Nutrition Council annual seminar (Chesapeake, VA)
Spring 1999	"Service Learning": article for Teaching Dilemmas column, Nutrition Educators of Health Professionals newsletter
Summer 1998	"The Five C's-Secrets of Top Teachers": article adaptation for Teaching Dilemmas column, Nutrition Educators of Health Professionals newsletter
Fall 1998	"Telemedicine - The Wave of the Future": article for Teaching Dilemmas column, Nutrition Educators of Health Professionals newsletter
11/98	General Nutrition/Herb Review for The Newly Diagnosed Multiple Sclerosis Patient : Tidewater chapter of the Multiple Sclerosis Society
10/98	Technology and Nutrition Education: Tidewater Nutrition Council general membership meeting
3/97, 3/98, 2/99	Conducted test-taking workshops for Dietetic Technician students preparing for the national DTR exam.
3/98	Coordinator and small group facilitator for Nutrition Assessment lecture: Eastern Virginia Medical School
3/98	Medical School Nutrition Assessment : Eastern Virginia Medical School, Tidewater Nutrition Council, Tidewater Dietetic Association Collaboration: Poster Session presentation for the Tidewater Nutrition Council annual seminar

3/98	Medical School Nutrition Assessment: EVMS, Tidewater Nutrition Council, Tidewater Dietetic Association Collaboration: Poster Session presentation for the Virginia Dietetic Association annual conference
3/97	Coordinator and small group facilitator for Nutrition Assessment lecture: Eastern Virginia Medical School
12/94	"Good Nutrition": Girl Scouts of America Local Conference, Virginia Beach, VA
11/94	"Finding Your Niche in Managed Care": Ross Laboratories program, DePaul Hospital, Norfolk, VA
9/94	"Patient Focused Hospital": Challenge the 90's Symposium, ARA Services, Greenville, N.C.
9/94	"Finding Your Niche in Managed Care": Tidewater Dietetic Association monthly meeting, Sentara Leigh Hospital, Norfolk,VA
5/94	"Patient Focused Hospital": Challenge the 90's Symposium, ARA Services, New Jersey.
9/93	"Patient Focused Hospital": ARA Patient Focused Hospital Task Force Meeting, Philadelphia, PA
9/93	"Patient Focused Hospital": Nutrition Symposium, Indianapolis, IN
9/93	"Nutrition and the Traumatized Patient – 1993 Update": Peninsula Regional Medical Center Trauma Conference, Ocean City, MD
4/93	"Nutrition in the Burn Patient": Rehab Services, Sentara Norfolk General Hospital, Norfolk, VA
2/93	"Nutrition and Metabolism": Radiology Department Course, Sentara Norfolk General Hospital, Norfolk, VA
10/92	"Nutrition and the Traumatized Patient": Critical Care Nurses Orientation, Sentara Norfolk General Hospital.
10/89	"Operational Resources Used By Clinical Dietitians in Virginia": Poster-session presentation at the annual meeting of the American Dietetic Association, Kansas City, Missouri, 1989.

PROFESSIONAL DEVELOPMENT

currently	Completing Certificate of Gerontology Studies, TCC
3/02	World Congress on Aging: Valencia, Spain
11/01	American Mathematical Association of Two Year Colleges Annual Conference: Toronto, Ontario, Canada
10/00	Food and Nutrition conference of the American Dietetic Association, Denver, Colorado
10/99	American Dietetic Association Annual Meeting and Exhibition, Atlanta, GA
5/99	Carbohydrate Counting: Tidewater Dietetic Association meeting
3/99	"Childhood Obesity": Tidewater Nutrition Council annual seminar
3/99	Virginia Dietetic Association annual conference
3/98	"Women's Health Issues" : Tidewater Nutrition Council annual seminar
3/98	The Virginia Dietetic Association annual conference.
8/97	"The Internet: A Guide for Health Professionals", INR seminar.
10/96	Annual meeting of The Virginia chapter of the American Society for Parenteral and Enteral Nutrition, Roanoke, VA.
10/96	"Consider the Challenge - - Nutrition's Role in Obtaining/Maintaining Control in the 90's", Diabetes seminar, Sentara Healthcare.
12/94	"Pediatric Nutrition" by M.J. Haney: TDA monthly meeting, Johnson & Wales University, Norfolk, VA.
4/94	"Nutrition Education in a Medical School Curriculum" by Dr. Christine Medlin: TDA monthly meeting, Norfolk, VA.
5/93	"Enteral Hyperalimentation" by Dr. James J. Cerda, University of Florida: Grand Rounds Presentation at Sentara Norfolk General Hospital.
3/93	"Refeeding Syndrome" by Dr. Donald F. Kirby, Medical College of Virginia, Richmond, VA: Grand Rounds Presentation at Sentara Norfolk General Hospital, Norfolk, VA.

3/93	"Nutritional Needs of the Neonatal Patient" by Michelle Smith, MS, RD, CNSD at the Children's Hospital of the Kings Daughters, Norfolk, VA.
3/93	"Nutrition and Immunology" presented by Sentara Hospital Seminars, Sentara Bayside Hospital, Virginia Beach, VA.
9/92	"Nutrition Support: Collaborative Practice for the 90's" presented by The Charlotte Area Health Education Center in Association with The University of North Carolina Area Health Education Centers Program at the annual meeting of the Virginia Chapter of The American Society for Parenteral and Enteral Nutrition, Williamsburg, VA.
5/92	"Patient Centered Care Case Management/Managed Care" sponsored by Sentara Health System Continuing Education Committee.
1/92	"Comprehensive Care of Children with Thermal Injuries" sponsored by Sentara Hospitals-Norfolk.
9/91	"New Frontiers in Nutrition Support" at the annual meeting of the Virginia chapter of the American Society for Parenteral and Enteral Nutrition, Alexandria, VA.
10/90	The American Dietetic Association annual meeting, Denver, CO.
10/89	The American Dietetic Association annual meeting, Kansas City, MO.
10/87	The American Dietetic Association annual meeting, Atlanta, GA.

COMMITTEE MEMBERSHIPS

Scholarship selection committee - Virginia Dietetic Association (2001)
Professional Advisor – local chapter of the Multiple Sclerosis Society
co-President - Tidewater Dietetic Association (2000/2001)
co-President Elect – Tidewater Dietetic Association (1999/2000)
editor - Tidewater Dietetic Association newsletter (1997/98)
Columnist – Nutrition Educators for Health Professionals national newsletter
Nominating Committee - Nutrition Educators for Health Professionals Dietetic Practice Group
Editor-elect-elect - The Educator's Resource Newsletter of the Nutrition Educators for Health Professionals Dietetic Practice Group (2000)
Nominating committee member - Nutrition Educators for Health Professionals Dietetic Practice Group (2000)

Editor-elect - The Educator's Resource Newsletter of the Nutrition Educators for Health Professionals Dietetic Practice Group (2001)
Editor - The Educator's Resource Newsletter of the Nutrition Educators for Health Professionals Dietetic Practice Group (2002)
Poster Session reviewer for the Virginia Dietetic Association Annual Conference (2000)
Technology Taskforce - Virginia Dietetic Association
Board Member - Virginia Dietetic Association